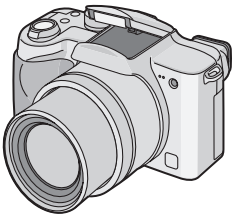
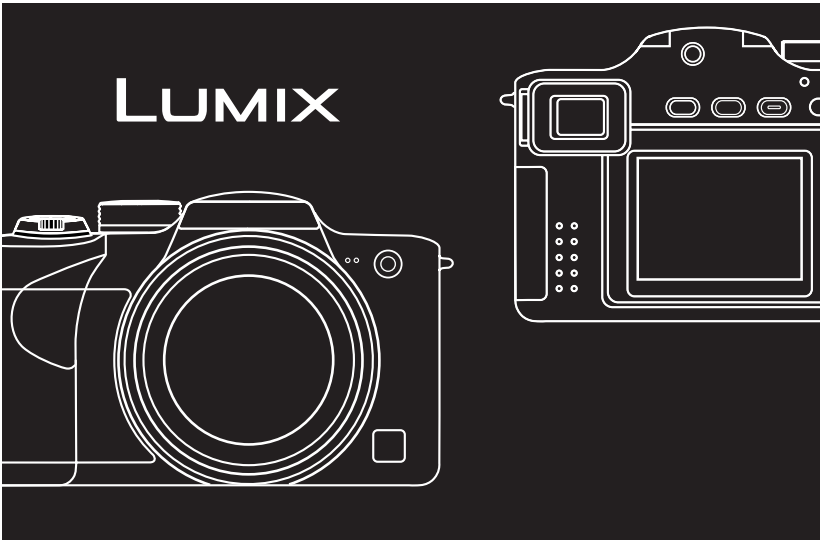
Panasonic



Operating Instructions

Digital Camera

Model No. DMC-FZ5GN



Before use, please read these instructions completely.

LEICA
DC VARIO-ELMARIT

VQT0Q40

Dear Customer,
We would like to take this opportunity to thank you for purchasing this Panasonic Digital Camera. Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

WARNING
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES AND DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Carefully observe copyright laws. Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

- Please note that the actual controls and components, menu items, etc. of your Digital Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.
- SD Logo is a trademark.
- Other names, company names, and product names printed in these instructions are trademarks or registered trademarks of the companies concerned.

IF THE POWER CORD OF THIS EQUIPMENT IS DAMAGED, IT MUST BE REPLACED WITH AN ELECTRICALLY APPROVED POWER CORD.

THE SOCKET OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

CAUTION
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

■ Care for the camera

- **Do not shake or cause impact to the camera.** The camera may not be operated normally or recording of pictures may be disabled, or the lens may be damaged.
- **Sand or dust may cause a malfunction of the camera. When you use the camera on a beach etc., take care so that sand or dust does not get into the camera.**
- When you use the camera on a rainy day or on a beach, take care so that water does not get into the camera.
- **If seawater splashes onto the camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again with a dry cloth.**

■ About the LCD monitor/Viewfinder

- **Do not press the LCD monitor strongly. It may cause uneven colours on the LCD monitor or a malfunction of the LCD monitor.**
- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with a soft, dry cloth.
- If the camera is extremely cold when you turn the camera on, the image on the LCD monitor/Viewfinder is slightly darker than usual at first. However, as the internal temperature increases, it goes back to the normal brightness.

Extremely high precision technology is employed to produce the LCD monitor/ Viewfinder screen. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this will not be recorded on the pictures in the card.

■ About the Lens

- Do not direct the lens to the sun or strong light sources. It may cause not only a malfunction of the camera but irreversible damage to your eye.
- Do not press the lens strongly.
- Leaving the camera with the lens facing the sun may cause a malfunction. Be careful when you put the camera outside or near a window.

■ About Condensation (When the lens or the Viewfinder is fogged up)

Condensation takes place when the ambient temperature or humidity is changed as follows:
Be careful of condensation since it causes stains on the lens, fungus or malfunction.

- When the camera is brought inside from the cold to a warm room.
- When the camera is moved from outside to an air-conditioned car.
- When cool wind from an air conditioner or other is directly blown onto the camera.
- In humid places

Put the camera into plastic bag until the temperature of the camera is close to the ambient temperature to avoid condensation. In case of condensation, turn the camera off and then leave it for about 2 hours.
When the camera becomes close to the ambient temperature, the fog disappears naturally.

■ **If you will not be using the camera for a long time**

- Store the battery in a cool and dry place with a relatively stable temperature. (Recommended temperature: 15°C – 25°C, Recommended humidity: 40% – 60%)
- Be sure to remove the battery and the card from the camera.
- When the battery is left inserted in the camera for a long time, discharge takes place even if the camera is turned off. If you leave the battery inserted for an extended period of time, it will be excessively discharged and it may become unusable even after it is charged.
- To store the battery for a long period of time, we recommend charging it once every year and storing it again after you completely use up the charged capacity.
- When you keep the camera in a closet or a cabinet, we recommend storing it with the desiccant (silica gel).

About These Operating Instructions

Please note that the description on this page is a sample and all pages are not described in this manner.

Compensating the Exposure

❶ PASM SCN

Use this function when you cannot achieve appropriate exposure due to the difference of brightness between the subject and the background.

❷

• EV is an abbreviation of Exposure Value, and it is the amount of light given to the CCD by the aperture value and the shutter speed.

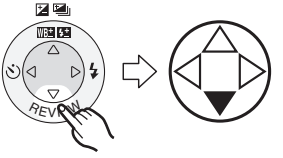
❶	Modes indicated here allow you to use the functions or settings described on this page. Set the Mode dial to any of the modes to use the functions or settings.
❷	Convenient or helpful information for use of the camera is described.

■ About illustrations in these operating instructions

Please note that the appearance of the product, the illustration or the menu screen are a little different from those in actual use.

■ About illustrations of the cursor button

In these operating instructions, the operations on the cursor button are described as illustrated below.

e.g.: When you press the ▼ button 

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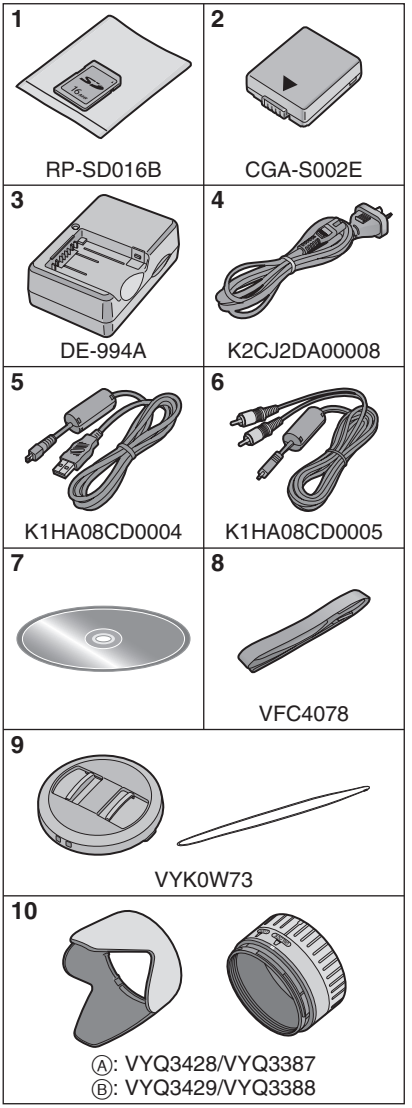
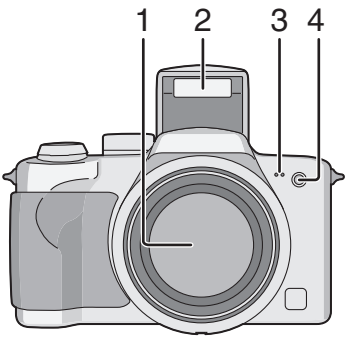
Standard Accessories

Before using your camera, check the contents.

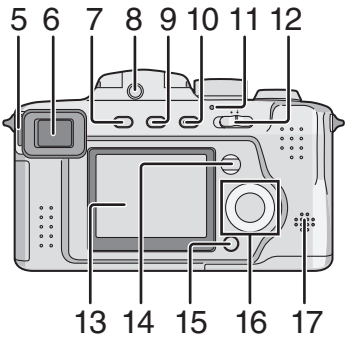


1 SD Memory Card (16 MB)
(In the text, it is indicated as “Card”)
2 Battery Pack
(In the text, it is indicated as “Battery”)
3 Battery Charger
(In the text, it is indicated as “Charger”)
4 AC Cable
5 USB Connection Cable
6 AV Cable
7 CD-ROM
8 Strap
9 Lens Cap/Lens Cap String
10 Lens Hood/Lens Hood Adaptor
Ⓐ: Silver
Ⓑ: Black

Names of the Components



1 Lens (P3)
2 Flash (P39)
3 Microphone (P60, 74)
4 Self-timer Indicator (P43)
AF Assist Lamp (P77)



5 Diopter Adjustment Dial (P27)
6 Viewfinder (P26, 103)
7 [EVF/LCD] Button (P26)
8 Flash Open Button (P39)
9 [DISPLAY] Button (P26)
10 [EXPOSURE] Button (P54, 55, 56)
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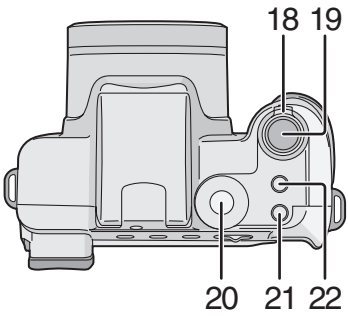
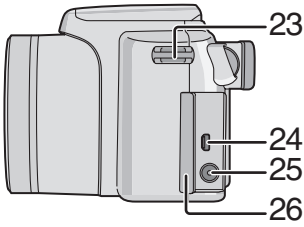
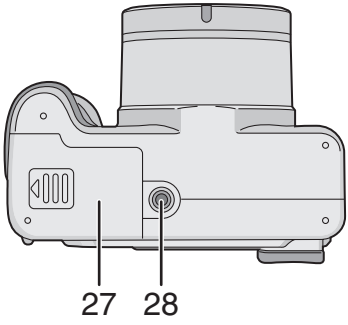
12 Camera ON/OFF Switch (P11)
13 LCD Monitor (P26, 103)
14 [MENU] Button (P22)
15 Delete (P52)/[FOCUS] (P66, 76) Button
16 Cursor Buttons
◄/Self-timer Button (P43)
▼/[REVIEW] Button (P37)
►/Flash Setting Button (P39)
▲/Exposure Compensation (P44)/Auto Bracket (P45)/White Balance Fine Adjustment (P71)/Flash Output Adjustment (P41)/Backlight Compensation in Simple Mode (P36) Button
17 Speaker (P82)



18 Zoom Lever (P38, 78)
19 Shutter Button (P30)
20 Mode Dial (P29)
21 Single or Burst Mode Button (P47)
22 Optical Image Stabilizer Button (P46)



23 Strap Eyelet (P18)
24 [AV OUT/DIGITAL] Socket (P94, 96, 98)
25 [DC IN] Socket (P96, 98)
• Please be sure to use genuine Panasonic AC adaptor (DMW-CAC1; optional).
26 Terminal Door



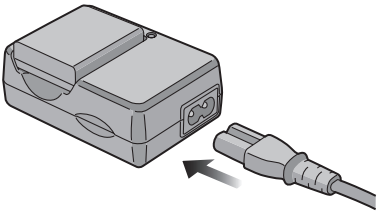
27 Card/Battery Door (P14, 15)
28 Tripod Receptacle

Quick Guide

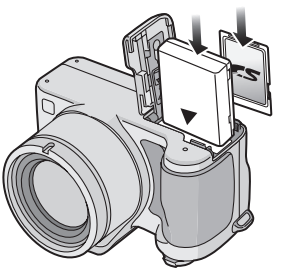
This is the overview of the procedure to record and playback pictures with the camera. For each operation, be sure to refer to the corresponding pages.

1 Charge the battery. (P12)

- **When the camera is shipped, the battery is not charged. Charge the battery before use.**

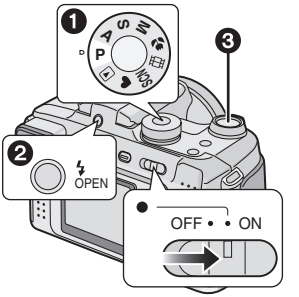


2 Insert the battery and the card. (P14, 15)



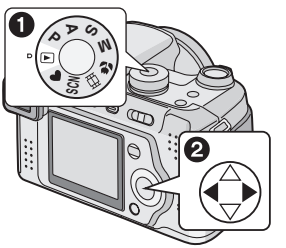
3 Turn the camera on to take pictures.

- Set the clock. (P21)



❶ Set the mode dial to [P].
❷ Open the flash.
(When using the flash) (P39)
❸ Press the shutter button to take pictures. (P30)

4 Play back the pictures.

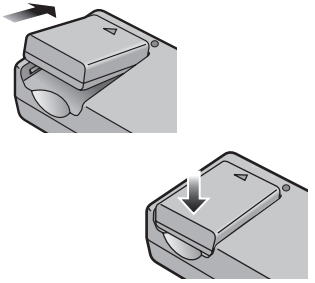


❶ Set the mode dial to [▶].
❷ Select the picture you want to view. (P49)

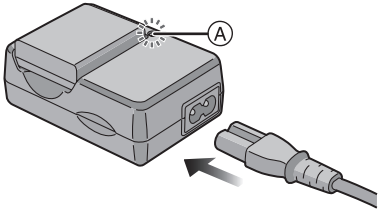
Charging the Battery with the Charger

When the camera is shipped, the battery is not charged. Charge the battery before use.

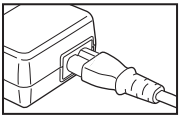
1 Attach the battery to the charger.



2 Connect the AC cable.

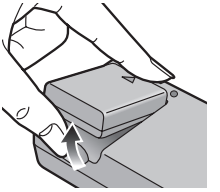


- The AC cable does not fit entirely into the AC input terminal. A gap will remain as shown below.



- When the [CHARGE] indicator Ⓐ lights in green, charging starts.
- When the [CHARGE] indicator Ⓐ turns off (in about 120 minutes), charging is completed.

3 Detach the battery.



- After charging is completed, be sure to disconnect the AC cable from the electrical outlet.
- The battery becomes warm after use/ charge or during charge. The camera also becomes warm during use. However, it is not a malfunction.
- **Use the dedicated charger and battery.**
- **Charge the battery with the charger indoors.**
- **Do not disassemble or modify the charger.**

About the Battery

■ Battery indication

The remaining battery power appears on the screen. [It does not appear when you use the camera along with the AC adaptor (DMW-CAC1; optional).]

- The battery indication turns red and blinks.
- Recharge the battery or replace it with fully charged battery.

■ The battery life

The number of recordable pictures by CIPA standard (In programme AE mode)

- CIPA is an abbreviation of [Camera & Imaging Products Association].

Number of recordable pictures	Approx. 300 pictures (Approx. 150 min.)

Recording conditions by CIPA standard

- Temperature: 23°C/Humidity: 50% when LCD monitor is on.
- Using the supplied SD Memory Card (16 MB)
- Using the supplied battery.
- Recording starts 30 seconds after the camera is turned on.
- **Recording once every 30 seconds,** with full flash every other recording.
- Rotating the zoom lever towards Tele to Wide and vice versa in every recording.
- Turn the camera off every 10 recordings.

The number of recordable pictures varies depending on the recording interval time. If the recording interval time becomes longer, the number of recordable pictures decreases.
(When taking a picture every 2 minutes: Approx. 75)

The number of recordable pictures when using the Viewfinder

(Recording conditions comply with CIPA standard.)

Number of recordable pictures	Approx. 320 pictures (Approx. 160 min.)

Playback time when using the LCD monitor

Playback time	Approx. 300 min.

The number of recordable pictures and playback time will vary depending on the operating conditions and storing condition of the battery.

■ Charging

Charging time	Approx. 120 min.

Charging time and the number of recordable pictures with the optional battery pack (CGA-S002E) are the same as above.

- When charging starts, the [CHARGE] indicator lights.

■ Charging error

- If a charging error occurs, the [CHARGE] indicator blinks in 1 second cycles. In this case, disconnect the AC cable from the electrical outlet, remove the battery and make sure that both room and battery temperature are not too low or high and then charge it again. If the [CHARGE] indicator still blinks even if you charge the battery for a while, consult the dealer or your nearest servicentre.
- When the operating time of the camera becomes extremely short even if the battery is properly charged, the life of the battery may have expired. Buy a new battery.

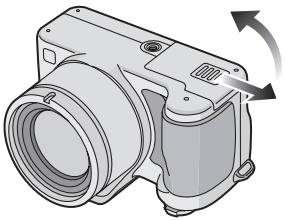
■ Charging conditions

- Charge the battery under temperature of 10°C – 35°C. (Battery temperature should be the same.)
- The performance of the battery may be temporarily deteriorated and the operating time may become shorter in low temperature conditions (e.g. skiing/ snowboarding).

Inserting/Removing the Battery

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

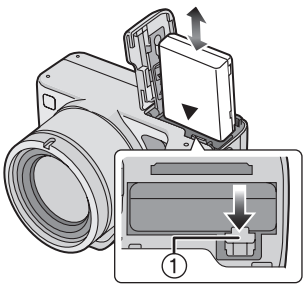
1 Slide the card/battery door to open it.



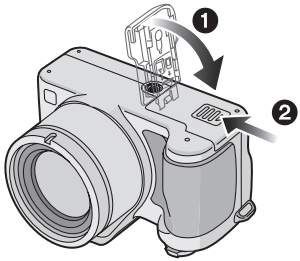
- Please be sure to use genuine Panasonic batteries (CGA-S002E).

2 Insert:
Insert the charged battery until it clicks.

Remove:
Slide the lock ① to remove the battery.



3 ❶ Close the card/battery door.
❷ Slide the card/battery door to the end and then close it firmly.

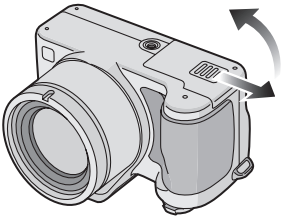


- If you will not be using the camera for a long time, remove the battery.
- When a fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for at least 3 months even if the battery is removed. (The storing time may be shorter if the battery is not charged sufficiently.)
  If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again. (P21)
- **Do not remove the card and the battery while the card is being accessed. The data on the card may be damaged. (P16)**
- **Do not remove the battery with the camera turned on since the settings on the camera may not be stored properly.**
- **The supplied battery is designed only for the camera. Do not use it with any other equipment.**

Inserting/Removing the Card

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

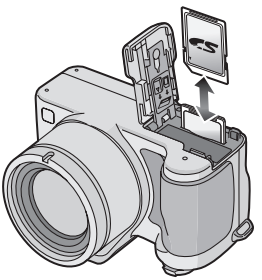
1 Slide the card/battery door to open it.



- **The card and the data may be damaged if it is inserted or removed while the camera is on.**
- We recommend using Panasonic's SD Memory Card. (Use only the genuine SD card with SD Logo.)

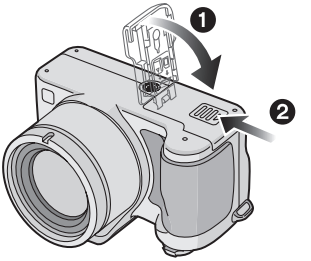
2 Insert:
Insert the card fully until it clicks and it is locked with the label facing the front of the camera.

Remove:
Push the card until it clicks, then pull the card out upright.



- Check the direction of the card.
- Do not touch the connection terminals on the back side of the card.
- The card may be damaged if it is not fully inserted.

3 ❶ Close the card/battery door.
❷ Slide the card/battery door to the end and then close it firmly.

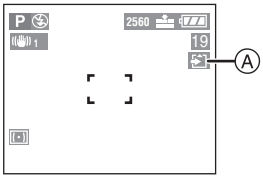


- If the card/battery door cannot be completely closed, remove the card and insert it again.

About the Card

■ Access to the card

When pictures are being recorded onto the card, the card access indication lights red.



When the card access indication Ⓐ lights, pictures are being read or deleted, or the card is formatted, do not:

- turn the camera off.
- remove the battery or the card.
- shake or impact the camera.

The card and the data may be damaged and the camera may not operate normally.

■ About handling a card

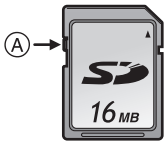
Store precious data to your PC (P96). The data on the card may be damaged or lost due to electromagnetic wave, static electricity, breakdown of the camera or a defective card.

- When you format the card on the PC or other equipment, format it with the camera again. (P93)

■ SD Memory Card (supplied) and MultiMediaCard (optional)

The SD Memory Card and MultiMediaCard are small, lightweight, removable external cards. The reading/writing speed of an SD Memory Card is fast. The SD Memory Card is equipped with a Write-Protect switch Ⓐ that can inhibit writing and formatting a card. (When the switch is slid to the [LOCK] side, it is not possible to write or delete data on the card and format it. When the switch is unlocked, these functions become available.)

SD Memory Card



On this unit, you can use SD Memory Cards of the following capacity (from 8 MB to 1 GB).

8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB (Maximum)

Please confirm the latest information on the following website.

http://panasonic.co.jp/pavc/global/cs

(This Site is English only.)

- This unit supports SD Memory Cards formatted in FAT12 system and FAT16 system based on SD Memory Card Specifications.

- The reading/writing speed of a MultiMediaCard is slower than an SD Memory Card. When a MultiMediaCard is used, the performance of certain features may be slightly slower than advertised.
- After recording motion images using the MultiMediaCard, the card access indication may appear for a while, but this is not a malfunction.
- Keep the Memory Card out of reach of children to prevent swallowing.

Approximate number of recordable pictures and the size

Picture size		2560×1920			2048×1536			1600×1200		
Reference for number of pixels		Approx. 5M pixels			Approx. 3M pixels			Approx. 2M pixels		
Quality		TIFF			TIFF			TIFF		
SD Memory Card	16 MB	0	5	11	1	9	17	2	14	28
	32 MB	1	12	24	3	19	37	4	31	59
	64 MB	3	25	49	6	39	75	10	63	121
	128 MB	8	51	100	12	79	153	20	128	244
	256 MB	15	99	195	24	154	299	39	250	476
	512 MB	30	197	387	48	305	592	78	495	944
	1 GB	61	395	775	96	610	1185	157	991	1889

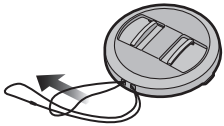
Picture size		1280×960			640×480			1920×1080 (HDTV)		
Reference for number of pixels		Approx. 1.3M pixels			Approx. 0.35M pixels			Approx. 2M pixels		
Quality		TIFF			TIFF			TIFF		
SD Memory Card	16 MB	3	22	41	13	69	113	2	13	25
	32 MB	7	47	86	28	145	236	4	28	54
	64 MB	15	96	176	58	298	484	9	58	110
	128 MB	31	195	356	118	602	979	18	118	223
	256 MB	61	381	693	231	1173	1906	36	231	435
	512 MB	121	755	1373	457	2324	3777	72	457	863
	1 GB	243	1511	2747	915	4650	7556	145	915	1727

- If you select a larger picture size, you can print pictures clearly. When you select a smaller picture size, you can record more pictures.
- The numbers are approximations. (If you mix TIFF, Fine and Standard quality, the number of recordable pictures changes.)
- The number of recordable pictures varies depending on subjects.
- The remaining number of recordable pictures displayed on the screen is an approximation.

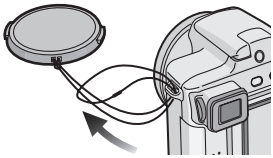
Attaching the Lens Cap/Strap

■ Lens Cap (supplied)

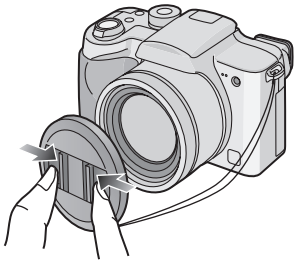
1 Pass the string through the hole on the lens cap.



2 Pass the string through the hole on the camera.

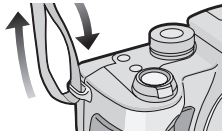


3 Attach the lens cap.

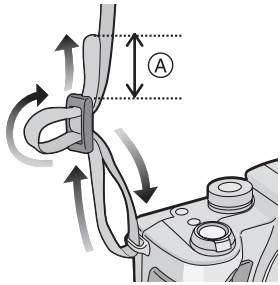


■ Strap (supplied)

1 Pass the strap through the hole at the Strap Eyelet.



2 Pass the strap through the stopper and fasten the strap.



Ⓐ: Pull the strap 2 cm or more.

- Attach the strap to the other side of the camera being careful not to twist it.
- Check that the strap is firmly attached to the camera.
- Attach the strap so that you can see "LUMIX" logo.

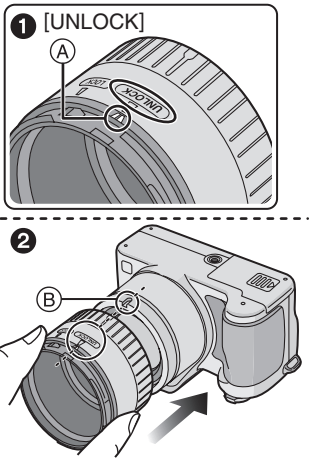
- When you turn the camera off, carry the camera or play back the pictures, attach the lens cap to protect the surface of the lens.
- Detach the lens cap before turning on the camera in the recording mode.
- When the mode dial is set to one of the recording modes and the camera is turned on with the lens cap attached, the message [REMOVE LENS CAP AND PRESS ► BUTTON] appears. Press ► button after detaching the lens cap.
- Be careful not to lose the lens cap.

Attaching the Lens Hood

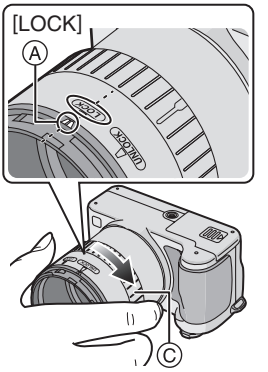
In bright sunlight or backlight, the lens hood will minimise lens flare and ghosting.
The lens hood cuts out excess light and improves the picture quality.

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

1 ❶ Counter-rotate the 2 halves of the lens hood adaptor until marker Ⓐ is at [UNLOCK] position.
❷ <u>Place the camera upside down.</u> Align [UNLOCK] to groove Ⓑ on the camera then slide the lens hood adaptor over the lens until it stops.

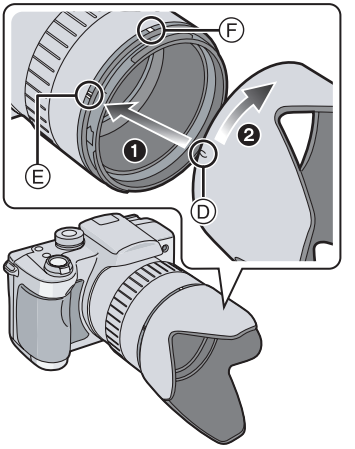


2 Rotate ring Ⓒ clockwise until [LOCK] mark is aligned with marker Ⓐ on the adaptor.



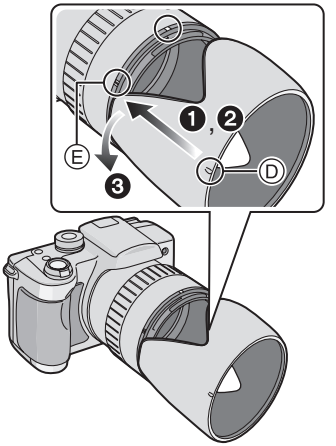
- Rotate the ring until it clicks.

3 ❶ <u>Place the camera right way up.</u> Align marker Ⓓ on the lens hood to marker Ⓔ on the adaptor and push the lens hood onto the adaptor.
❷ Rotate the lens hood clockwise until it stops at marker Ⓕ.

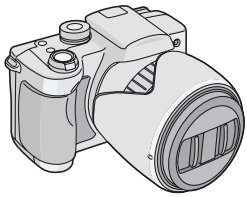


■ **Temporarily storing the lens hood**

1 ❶ Remove the lens hood, turn it around then align marker Ⓓ on the lens hood to marker Ⓔ on the adaptor.
❷ Push the lens hood onto the adaptor until it clicks.
❸ Rotate the lens hood counter-clockwise until it clicks.



2 Attach the lens cap.



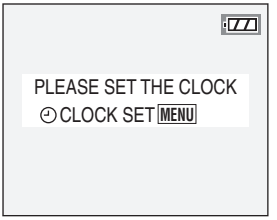
- Do not take a picture while the lens hood is temporarily stored.
- Ensure that the lens cap is firmly attached.
- When the lens hood is attached, unstrap the lens cap and attach the lens cap only.

- Before taking pictures with flash, remove the lens hood first otherwise a shadow from the hood will be cast on the bottom part of the pictures (vignetting effect).
- When using the AF assist lamp in the dark, detach the lens hood.
- For details on how to attach the MC protector and the ND filter, refer to P102.
- Consult the dealer or your nearest service centre if you lose the supplied accessories. (You can purchase the accessories separately.)

Setting Date/Time (Clock Set)

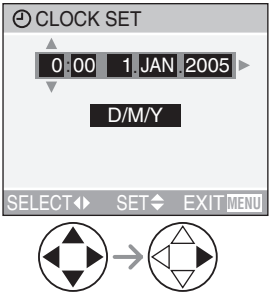
■ **Initial setting**

The clock is not set when the camera is shipped. When you turn the camera on, the following screen appears.



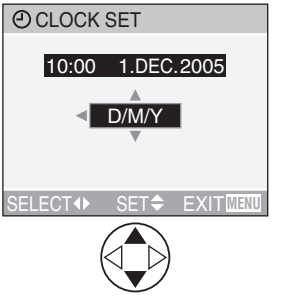
- When pressing the [MENU] button, the screen shown in step 1 appears.
- The screen disappears in about 5 seconds. Turn the camera on again or select [CLOCK SET] on the [SETUP] menu and then set the clock. (P22)

1 Set date and time.



- ◄/►: Select the desired item.
- ▲/▼: Set date and time.

2 Select [D/M/Y], [M/D/Y] or [Y/M/D].



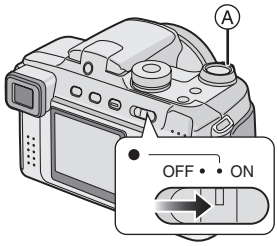
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.
- Check if the clock setting is correct, after turning the camera off and on.

- When a fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for at least 3 months even if the battery is removed. (The storing time may be shorter if the battery is not charged sufficiently.)
  If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again.
- You can set the year from 2000 to 2099. The 24-hour system is used.
- If you do not set the date, the date cannot be printed when you go to a photo studio for digital printing.
- For the date print setting, refer to P86.

About the Setup Menu

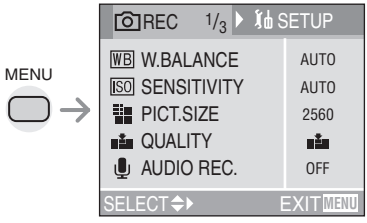
• Set the items if necessary. (Refer to P23–25 for each menu item.)

1 Turn the camera on.

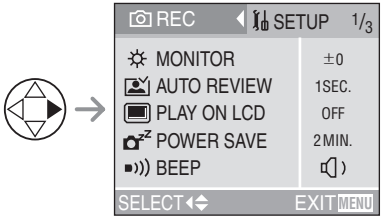


• The menu items depend on the mode selected with the mode dial (P29). In this page, the items in programme AE mode [P] are indicated.

2 Press the [MENU] button.

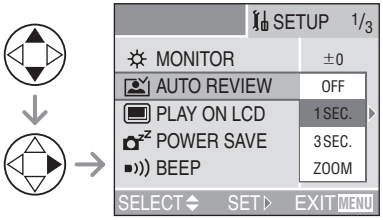


3 Select the [SETUP] Menu.

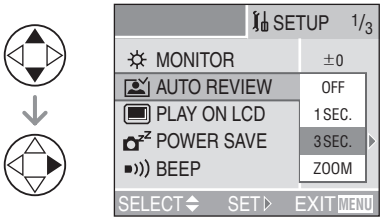


• When rotating the zoom lever Ⓐ toward T or W, the page of the menu screen can be forwarded or reversed.

4 Select the desired item.



5 Select the desired value.



Be sure to press ► at the end to store the setting.

• Close the menu by pressing the [MENU] button after finishing the setting. In recording mode, you can also close the menu by pressing the shutter button halfway.

MONITOR/VIEWFINDER

Adjust the brightness of the LCD monitor (when pictures appear on the LCD monitor) or Viewfinder (when pictures appear on the Viewfinder) in 7 steps.

AUTO REVIEW

[OFF]: The recorded picture does not automatically appear.

[1SEC.]: The recorded picture automatically appears on the screen for about 1 second.

[3SEC.]: The recorded picture automatically appears on the screen for about 3 seconds.

[ZOOM]: The recorded picture automatically appears on the screen for about 1 second. Then it is enlarged 4 times and appears for about 1 second. This mode is useful for confirming focus. Pictures in burst mode, auto bracket, pictures with audio are not enlarged even if [ZOOM] is selected.

- In motion image mode [ ], auto review function is not activated.
- When pictures are recorded in any speed ([ ], [ ] and [ ]) on burst mode (P47) or auto bracket [ ] (P45), the auto review function is activated regardless of the setting on the auto review function. (The picture is not enlarged.)
- When using pictures with audio, the auto review function works while recording the audio or the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.)
- When the quality is set to [TIFF], the auto review function works until the end of recording onto the card. (The picture is not enlarged.)
- The setting for the auto review function is disabled in motion image mode, burst mode, auto bracket or when [AUDIO REC.] is set to [ON].

PLAY ON LCD

When Viewfinder is selected in the recording mode while setting [PLAY ON LCD] to [ON], the picture automatically appears on the LCD monitor in review or playback. (P27)

POWER SAVE

[1MIN.]/[2MIN.]/[5MIN.]/[10MIN.]: The power save mode is activated (the camera is automatically turned off to save the battery life) if the camera has not been used for the time selected on the setting.

[OFF]: The power save mode is not activated.

- Press the shutter button halfway or turn the camera off and on to cancel the power save mode.
- When using the AC adaptor (DMW-CAC1; optional)/connecting to a PC or a printer/ recording motion images/playing back motion images/during Slide Show, the power save mode is not activated.
- In simple mode [♥] (P34), the setting for the power save mode is fixed to [2MIN.].

BEEP

[ ]: No operational sound
[ ]: Soft operational sound
[ ]: Loud operational sound

- The operational sound setting also affects simple mode [♥].

SHUTTER

Set to select the volume of shutter sound.

[ ]: No shutter sound
[ ]: Soft shutter sound
[ ]: Loud shutter sound

VOLUME

The volume of speakers can be adjusted in 7 steps. (LEVEL 6 to 0)

- When you connect the camera to a TV, the volume of the speakers of the TV is not changed.

CLOCK SET

Change date and time. (P21)

NO.RESET

Set this when you want to start the file number of the picture from 0001 on the next recording. (The folder number is updated, and the file number starts from 0001.)

- The folder number can be assigned from 100 to 999.
  When the folder number reaches 999, you cannot reset the file number. We recommend formatting the card after saving the data on a PC or elsewhere.
- To reset the folder number to 100, format the card first and then use this function to reset the file number.
  After that, the reset screen for the folder number appears. Select [Yes] to reset the folder number.
- Refer to P97 for detailed information about the file number and the folder number.
- The file number reset also affects simple mode [♥].

RESET

The settings on the [REC] or the [SETUP] menu are reset to the initial settings.

- The setting on [ROTATE DISP.] in the [PLAY] mode menu is also reset. (P84)
- The folder number and the clock setting are not changed.

USB MODE

Set the USB communication system.

- Set before connecting to a PC or a printer. (P95)

HIGHLIGHT

When the auto review or review function is activated, a white saturated area appears blinking in black and white. (P27)

VIDEO OUT

(Playback mode only) (P94)

[NTSC]: Video output is set to NTSC system.

[PAL]: Video output is set to PAL system.

SCENE MENU

[OFF]: Scene menu does not appear when setting the mode dial to scene mode and the camera is operated in the scene mode currently selected. If you change the scene mode, press the [MENU] button to display the scene menu and then select the desired scene mode.

[AUTO]: Scene menu appears automatically when setting the mode dial to scene mode. Select the desired scene mode.

LANGUAGE

Set to the language on the menu screen from the following languages.

Set to the desired language with ▲/▼ and store it with ►.

[ENGLISH]: English

[DEUTSCH]: German

[FRANÇAIS]: French

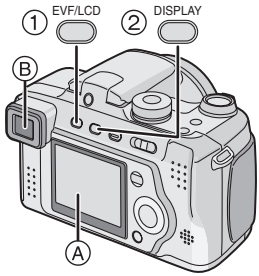
[ESPAÑOL]: Spanish

[ITALIANO]: Italian

[日本語]: Japanese

- When you set to other language by mistake, select [ ] from the menu icons to set the desired language.
- The language setting also affects simple mode [ ].

About the LCD Monitor/Viewfinder



① Switching the LCD monitor/ Viewfinder

Press the [EVF/LCD] button to switch the monitor screen.

Ⓐ LCD monitor (LCD)
Ⓑ Viewfinder (EVF)

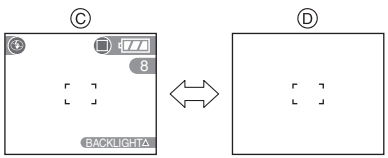
- When the LCD monitor turns on, the Viewfinder turns off (and vice versa).

② Selecting the screen to be used

Press the [DISPLAY] button to change the display.

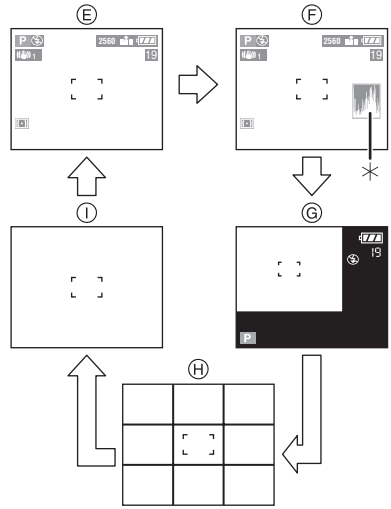
- When the menu screen appears, the [DISPLAY] button is not activated. During 9 pictures multi playback (P50) or playback zoom (P51), the indications on the screen can be turned on and off.

In simple mode [♥] (P34)



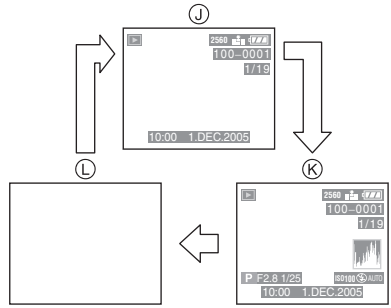
Ⓒ Normal display
Ⓓ No display

In recording mode (P30)



Ⓔ Normal display
Ⓕ Display with histogram
Ⓖ Out-of-frame display
Ⓗ No display (Recording guide line)
Ⓘ No display
∗Histogram

In playback mode (P49)



Ⓙ Normal display
Ⓚ Display with recorded information and histogram
Ⓛ No display

■ **Out-of-frame display**

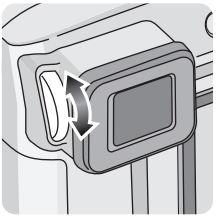
The recording information is displayed out of the recording screen, therefore, you can take pictures without obstruction from icons or others on the monitor, except the zoom and important warning indicators.

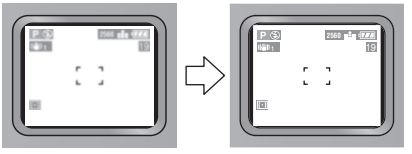
■ **Diopter adjustment**

This feature is handy for users who wear corrective lenses and prefer to use the Viewfinder.

- Press the [EVF/LCD] button to display the Viewfinder.

Adjust the diopter, rotating the diopter adjustment dial.





■ **Monitor priority**

When setting [PLAY ON LCD] to [ON] on the [SETUP] menu (P22), the LCD monitor is turned on in the following cases.

You can save the time it takes to switch the display to the LCD monitor even when using the Viewfinder in recording.

- When the recording mode is switched to playback mode.
- When reviewing pictures. (P37)
- When turning the camera on in playback mode.

■ **Recording guide line**

When you align the subject on the horizontal and vertical guide lines or the cross point of these lines, you can take pictures with well-designed composition by viewing the size, the slope and the balance of the subject.

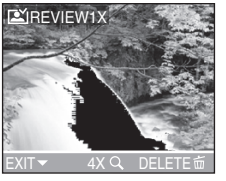
■ **Highlight display**

When setting [HIGHLIGHT] to [ON] on the [SETUP] menu (P22) while the auto review or review function is activated, any white saturated area (extremely bright or glistening part) on the picture appears blinking in black and white.

- If you compensate the exposure to minus, referring to the histogram and then take a picture again, it may result in a good picture.

No highlight display

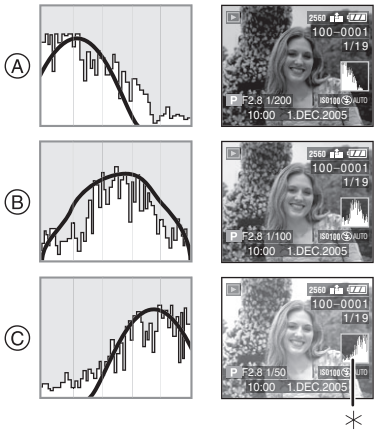
With highlight display



■ Histogram

- A histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis.
- It allows the camera user to easily check the way a picture is being exposed.
- It is very useful if manual adjustments of the lens aperture and shutter speed are available, especially in those situations where automatic exposure may be difficult due to uneven lighting. Using the histogram feature will allow you to get the best performance from the camera.
  - Ⓐ When the values are concentrated to the left, the picture is under exposed.
  - Ⓑ When the values in the histogram are distributed evenly, the exposure is adequate and the brightness is well-balanced.
  - Ⓒ When the values are concentrated to the right, the picture is over exposed.

Example of histogram



Ⓐ Under Exposed
Ⓑ Properly Exposed
Ⓒ Over Exposed
✳Histogram

- **When the recorded picture and the histogram do not match each other under the following conditions, the histogram is displayed in orange.**
  - – When the flash is activated
  - – When the flash is closed
    - ① When the brightness of the screen is not correctly displayed in dark places
    - ② When the exposure is not adequately adjusted
- The histogram does not appear when in motion image mode [ ], during multi playback and playback zoom.
- The histogram in the recording mode is an approximation.
- The histogram in recording and playback may not match each other.
- The histogram in the camera does not match the one displayed in image editing software used with a PC, etc.
- Check white saturated areas with the highlight display in the auto review function or the review function. (P27)

Taking Pictures

■ The Mode Dial

This camera has a mode dial to suit recording of many kinds of scenes.
Select the desired mode and enjoy the variety of recording.
Rotate the mode dial slowly and securely.

P : Programme AE mode (P30)
The exposure is automatically adjusted by the camera.

A : Aperture-priority AE (P54)
The shutter speed is automatically determined by the aperture value you set.

S : Shutter-priority AE (P55)
The aperture value is automatically determined by the shutter speed you set.

M : Manual exposure (P56)
The exposure is adjusted by the aperture value and the shutter speed which are manually adjusted.

: Macro mode (P59)
This mode allows you to take a picture closely focusing on the subject.

: Motion image mode (P60)
This mode allows you to record motion images.

SCN : Scene mode (P62)
This mode allows you to take pictures depending on the recording scenes.

: Simple mode (P34)
This is the recommended mode for beginners.

: Playback mode (P49)
This mode allows you to play back recorded pictures.

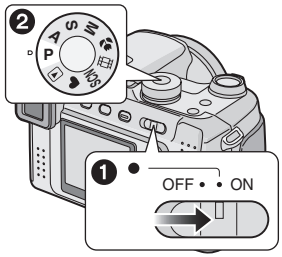
■ **Programme AE**

P

The camera automatically sets the shutter speed and the aperture value according to the brightness of the subject.

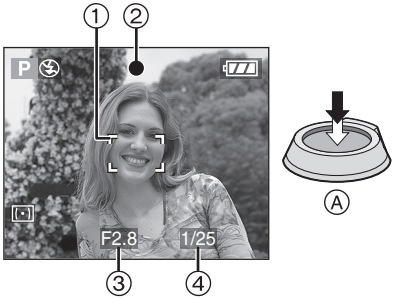
• Remove the lens cap.

1 ❶ Turn the camera on.
❷ Set the mode dial to programme AE mode [P].



• The power indicator (green) lights. When it blinks, the remaining battery power is low. Insert a fully charged battery.

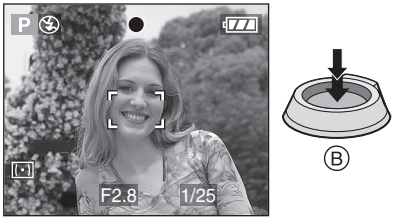
2 Aim the AF area ① to the point you want to focus and then press the shutter button halfway.



• Ⓐ: Press the shutter button halfway to focus.

• The focus indication ② is lit and then the aperture value ③ and the shutter speed ④ are displayed.

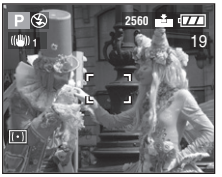
3 Take a picture.



• Ⓑ: Press the shutter button fully to take the picture.

	When the subject is not focused	When the subject is focused
Focus indication	Blink (green)	On (green)
AF area	Turns from white to red	Turns from white to green
Sound	Beeps 4 times	Beeps 2 times

■ AF/AE Lock (AF: Auto focus/ AE: Auto exposure)



When recording a picture of people with a composition as the above picture, you cannot focus on the subject because it is out of AF area in usual operation.

In this case,

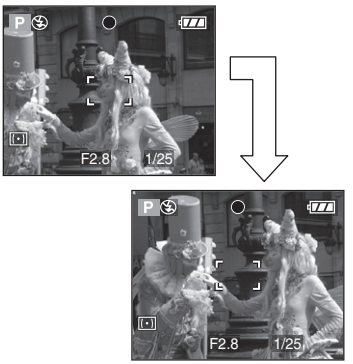
1 Aim the AF area at the subject.

2 Press the shutter button halfway to fix the focus and the exposure.
- When the subject is focused, the focus indication lights.

3 Keeping the focus and the exposure fixed, move the camera as you compose the picture.

4 Press the shutter button fully.

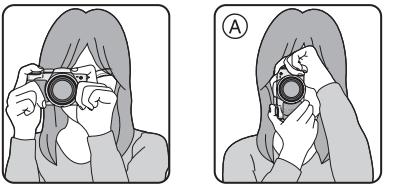
- You can repeatedly retry AF/AE lock before pressing the shutter button fully.



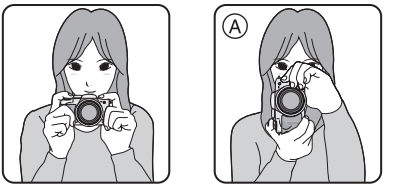
■ Tips for taking good pictures

To take pictures without blurring:
- Hold the camera gently with both hands, keep arms stationary at your side and stand with your feet slightly apart.
- Make sure that camera shake does not occur when you press the shutter button.
- Do not cover the microphone or the AF assist lamp with your finger or other objects.
- Do not touch the front of the lens.

When recording with Viewfinder



When recording with LCD Monitor



Ⓐ: When holding the camera vertically

- Especially in the following cases, the shutter speed will be slower. Keep the camera still from the moment you press the shutter button until the picture appears on the screen. We recommend using a tripod.
  - Slow sync./Red-eye reduction [ⓈS] (P39)
  - [NIGHT SCENERY], [NIGHT PORTRAIT], [FIREWORKS] and [PARTY] in scene mode (P62)
  - When you set to a slower shutter speed (P55, 56)

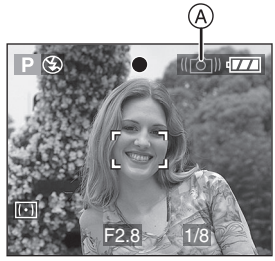
■ Focusing

- The focus range is 30 cm – ∞ (Wide), 2 m – ∞ (Tele).
- When you press the shutter button fully with one stroke, pictures may be blurry or unfocused.
- When the focus indication is blinking, the subject is not focused. Press the shutter button halfway and focus on the subject again.
- If the camera will not focus after a few tries, turn it off and on and try again.
- In the following cases, the camera cannot focus on subjects properly.
  - When including both near and distant subjects in a scene.
  - When there is dirt or dust on the glass between the lens and the subject.
  - When there are illuminated or glittering objects around the subject.
  - When taking a picture in a dark place.
  - When the subject is moving fast.
  - When the scene has low contrast.
  - When jitter occurs.
  - When recording a very bright subject.

  We recommend taking pictures using AF/AE lock (P31) or prefocus (P76). In dark places, the AF assist lamp (P77) may turn on to focus on the subject.
- Even if the focus indication appears and the subject is focused, it is cancelled when you release the shutter button. Press the shutter button halfway again.

■ Jitter (camera shake)

- Be careful of jittering when pressing the shutter button, especially when fully zoomed into the subject.
- When jitter could occur because of slow shutter speed, the jitter alert Ⓐ appears.



- When the jitter alert appears, we recommend using a tripod. If you cannot use a tripod, be careful of how you hold the camera. (P31)

■ Direction detection function

- If you take pictures by holding the camera vertically, the information of the rotation on the pictures are automatically added and recorded to the pictures.
  When [ROTATE DISP.] (P84) is set to [ON], you can rotate and display pictures on the screen or the TV according to the information of the rotation on the pictures.
- When you take pictures by holding the camera vertically, read “Tips for taking good pictures” on P31 carefully.
- This function may not work properly on pictures recorded by aiming the camera up or down.
- You cannot use the direction detection function in motion image mode [ ] and when you create flip animation.

■ **Exposure**

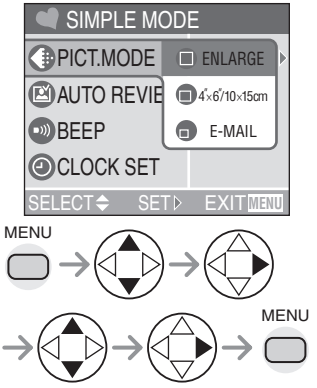
- If you press the shutter button halfway when the exposure is not adequate, the indication of the aperture value and the shutter speed turns red. (However, the aperture value and the shutter speed do not turn red when the flash is activated.)
- The brightness of the screen may differ from that of recorded pictures. In particular, when taking pictures in dark places with slow shutter speed, the subject looks dark on the screen, but the actual picture is bright.
- When most of the subjects in the screen are bright (e.g. blue sky on a clear day, snowy field, etc.), the recorded pictures may become dark. In this case, compensate the exposure value on the camera. (P44)

- When you press the shutter button, the LCD monitor may become bright or dark for a moment. This function allows easy adjustment of focus and the recorded picture will not be affected.
- We recommend making sure the clock is set properly before taking pictures. (P21)
- When the time for power save is set (P22), the camera is automatically turned off if you do not operate within the set time. When operating the camera again, press the shutter button halfway or turn the camera off and on.
- In some cases, if the distance between the camera and the subject is beyond the recordable range when you use the camera, the picture may not be properly focused even if the focus indication is lit.

Taking Pictures in Simple Mode

This mode allows beginners to take pictures easily. Only the most basic functions appear in the menu to make operations simple.

1 Select the desired item and set the desired value.



■ **Settings in Simple mode**

[PICT.MODE]

ENLARGE	This selection is intended for situations when large printing (8″×10″, Letter etc.) is desired.
4″×6″/ 10×15cm	This selection offers an easy way to produce small “general purpose” prints.
E-MAIL	This selection favors a smaller file size, optimised for home page and e-mail use.

[AUTO REVIEW]

OFF	The recorded picture does not automatically appear.
ON	The recorded picture automatically appears on the screen for about 1 second.

[BEEP]

OFF	No operational sound
LOW	Soft operational sound
HIGH	Loud operational sound

[CLOCK SET]
Change date and time. (P21)

■ Other Settings in Simple mode

In Simple mode, other settings are fixed as follows. For details, refer to the pages corresponding to each item.

Focus range	2 m – ∞ (Tele) 5 cm – ∞ (Wide)	
MONITOR	[0] (standard)	P22
POWER SAVE	[2MIN.]	P22
Self-timer	10 seconds	P43
Optical Image Stabilizer	[MODE1]	P46
Burst speed	Low speed	P47
	Number of recordable pictures in Burst mode • [ENLARGE]: max. 4 pictures • [4″×6″/10×15cm]: max. 7 pictures • [E-MAIL]: max. 7 pictures	
White balance	[AUTO]	P70
ISO sensitivity	[AUTO]	P72
Picture size and Quality	• [ENLARGE]: 2560×1920 pixels/Fine • [4″×6″/10×15cm]: 1600×1200 pixels/Standard • [E-MAIL]: 640×480 pixels/Standard	P73
Metering mode	[ ] (Multiple)	P74
AF mode	[ ] (1-area-focusing)	P75
AF trigger	[ ]	P76
AF assist lamp	[ON]	P77

■ The Backlight Compensation

Backlight is a situation where light comes from the back of subjects. The subjects such as people become dark when pictures are recorded in backlight. If you press ▲, [ ] (compensating backlight ON indication) appears and the backlight compensation function is activated. This function compensates the backlight by brightening the whole of the picture.

- If you press ▲ while [ ] is displayed, [ ] disappears and the backlight compensation function is cancelled.
- When you use the backlight compensation function, we recommend using the flash.

- The settings on the simple mode are not applied to other recording modes except [CLOCK SET] and [BEEP].
- You cannot set the following items in the simple mode.
  – [PLAY ON LCD]
  – [NO.RESET]
  – [RESET]
  – [USB MODE]
  – [HIGHLIGHT]
  – [VIDEO OUT]
  – [LANGUAGE]

  However, the setting on [NO.RESET] and [LANGUAGE] in the [SETUP] menu also affects the simple mode.
- You cannot use the following functions in the simple mode.
  – White balance fine adjustment
  – Exposure compensation
  – Auto bracket
  – [PICT.SIZE]
  – [QUALITY]
  – [AUDIO REC.]
  – [CONT.AF]
  – [D.ZOOM]
  – [COL.EFFECT]
  – [PICT.ADJ.]
  – [FLIP ANIM.]
  – Flash output adjustment

  However, the setting on [PICT.SIZE] and [QUALITY] corresponds to the setting on [PICT.MODE].

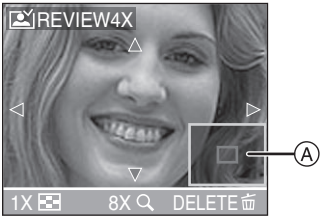
Checking the Recorded Picture (Review)

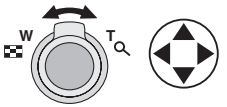
PASM SCN

1 Press ▼.

- The last recorded picture appears for about 10 seconds.
- Press the shutter button halfway or ▼ to cancel the review.
- You can check other pictures by pressing ◄/►.
- When the recorded pictures are too bright or dim, compensate the exposure. (P44)

2 Enlarge and shift the picture.

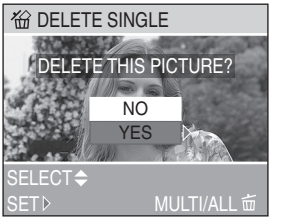




- : 1×→4×→8×
- : 8×→4×→1×

- When you change the magnification or the position to be displayed, the zoom position indication Ⓐ appears for about 1 second to check the enlarged area.

■ Recorded pictures can be deleted during the review (Quick Deletion)

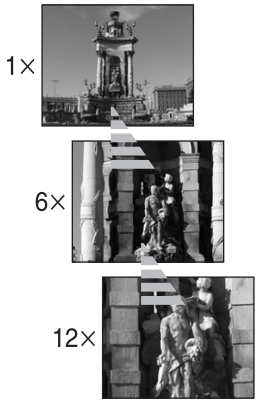


- Once deleted, pictures cannot be recovered.
- Multi pictures or all pictures can be deleted. Read P52 or P53 to operate them.

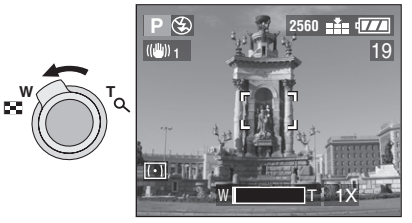
Using the Optical Zoom

PASM SCN

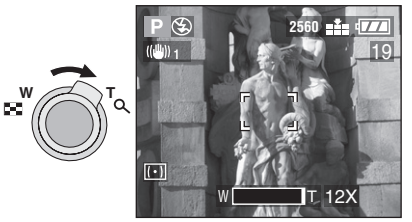
You can make people and subjects appear closer with the 12 times optical zoom, and landscapes can be recorded in wide angle.



■ **To make subjects appear further away use (Wide)**



■ **To make subjects appear closer use (Tele)**

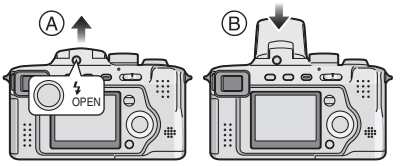


- The optical zoom is set to Wide (1×) when the camera is turned on.
- The picture may have some distortion (typical example: vertical straight line bent outwards). This is due to the lens aberration, which is common to some extent with all photographic lenses. Distortion may be more visible when using a wider area of the zoom lens as you get closer to the subject.
- When using the zoom lens at high magnification, the quality of the picture can be enhanced if a tripod is used. At high magnification, even small movements can cause a slight decrease in picture sharpness.
- If you use the zoom function after focusing on the subject, focus on the subject again.
- When you record motion images, the zoom magnification is fixed to the value set at the start of recording.
- The indicated zoom magnification is an approximation.
- The lens is ejected or retracted according to the zoom position.
- Take care not to interrupt the motion of the lens while the zoom lever is rotated.
- When you rotate the zoom lever, you may hear some sound from the camera or the camera may be shaken. However, it is not a malfunction.

Taking Pictures using the Built-in Flash

P A S M SCN

When you set the flash, you can take pictures using the built-in flash according to the recording condition.

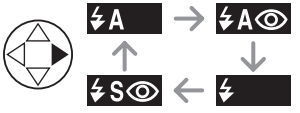


Ⓐ **To open the flash**
Press the [OPEN] button.

Ⓑ **To close the flash**
Press the flash until it clicks.

- Be sure to close the flash when not in use.
- The flash setting is fixed to Forced OFF [ ] while the flash is closed.

■ **Switching to the appropriate flash setting**



For the selectable flash settings, refer to “Available flash settings by recording mode” on P40.

: AUTO
The flash is automatically activated according to the recording condition.

: AUTO/Red-eye reduction
The flash is automatically activated according to the recording condition.
It reduces the red-eye phenomenon (eyes of the subject appear red in the picture) by triggering the flash before actually recording the picture. After that, the flash is activated for actual recording again.

- **The flash is activated 2 times. The first flash is activated only for a preparation of actual recording. The subject should not move until the second flash is finished.**
- **Use this when you take pictures of people in low lighting conditions.**

: Forced ON
The flash is activated every time regardless of the recording condition.

- **Use this when your subject is back-lit or under fluorescent light.**

: Forced ON/Red-eye reduction

- **The flash setting is set to Forced ON/ Red-eye reduction only when you set to [PARTY] in scene mode. (P62)**

: Slow sync./Red-eye reduction
When you take a picture with a dark background landscape, this feature makes the shutter speed slow when the flash is activated, so that the dark background landscape will become bright.
Simultaneously it reduces the red-eye phenomenon.

- **Use this when you take pictures of people in front of a dark background.**

: Forced OFF
The flash is not activated in any recording condition.

- **Use this when you take pictures in places where the use of the flash is not permitted.**

■ Available flash settings by recording mode

The available flash settings depend on the recording mode.
(○: Available, —: Not available)

	P	A	S	M												
⚡A	○	○	○	○	○	—	○	○	—	—	—	○	—	—	○	—
⚡A👁	○	○	○	○	○	—	○	○	—	—	—	○	—	—	—	○✳
⚡	○	○	○	○	○	—	○	○	—	—	—	○	—	—	○	○
⚡👁	—	—	—	—	—	—	—	—	—	—	—	—	—	○	—	—
⚡S👁	○	○	—	—	○	—	—	—	—	—	○	—	—	○	—	—
🚫	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

✳Not available in backlight compensation

■ The available flash range to take pictures

ISO sensitivity	Available flash control range	
	Wide	Tele
AUTO	30 cm – 4.5 m	30 cm – 3.8 m
ISO80	30 cm – 2 m	30 cm – 1.7 m
ISO100	30 cm – 2.2 m	30 cm – 1.9 m
ISO200	40 cm – 3.1 m	40 cm – 2.6 m
ISO400	60 cm – 4.5 m	60 cm – 3.8 m

- The available flash range is an approximation.
- Refer to P32 for the focus range.
- Refer to P72 for the ISO sensitivity.

- If the ISO sensitivity is set to [AUTO], it is automatically adjusted from [ISO100] to [ISO400] when you use the flash.
- To avoid noise, we recommend decreasing the ISO sensitivity (P72) or setting [PICT.ADJ.] to [NATURAL]. (P79)
- In motion image mode [🎞], [SCENERY], [NIGHT SCENERY] or [FIREWORKS] in scene mode (P62), the flash setting is fixed to the Forced OFF [🚫] even if the flash is opened.

■ **Shutter speed for each flash setting**

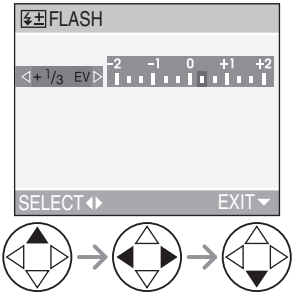
Flash setting	Shutter speed (Sec.)
: AUTO	1/60 – 1/2000
: AUTO/Red-eye reduction	1/60 – 1/2000
: Forced ON : Forced ON/Red-eye reduction	1/60 – 1/2000
: Slow sync./Red-eye reduction	1 – 1/2000
: Forced OFF	1/4 – 1/2000
	8 – 1/2000 (In [NIGHT SCENERY] in scene mode)

• Refer to P58 for the Aperture-priority AE, Shutter-priority AE or Manual exposure mode.

■ **Adjusting flash output**

Adjust the flash output when the subject is small or reflection ratio is extremely high or low.

1 Press ▲ several times until [FLASH] appears and then set the flash output.



- You can adjust this from −2 EV to +2 EV in steps of 1/3 EV.
- The flash output setting is memorised even if the camera is turned off.
- In motion image mode [ ], simple mode [ ], [SCENERY], [NIGHT SCENERY] or [FIREWORKS] in scene mode (P62), you cannot adjust the flash output.

- **Do not stare at the photo flash from close proximity.**
- **If you bring the flash too close to the subjects, they may be distorted or discoloured by its heat and lighting.**
- **Do not cover the photo flash with your fingers or any other items.**
- When you take a picture beyond the flash control range, the exposure may not be adjusted properly and the picture may become bright or dark.
- When you repeat taking a picture, recording may be disabled even if the flash is activated. Take a picture after the access indication disappears.
- When the jitter alert appears, we recommend using the flash.
- When you set to burst mode or auto bracket, only 1 picture is recorded for every flash activated.
- The flash icon turns red when activating the flash and pressing the shutter button halfway.
- When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
- **When taking a picture with the flash, we recommend removing the lens hood. In some cases it may not allow the scene to be illuminated properly.**
- Do not close the flash soon after the flash is activated prior to taking pictures due to AUTO/Red-eye reduction etc. It causes a malfunction.
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [☼] (Daylight) and [AWB] (Flash)], but the white balance may not be properly adjusted if the flash level is insufficient.
- When the shutter speed is fast, the flash effect may not be sufficient.

Taking Pictures with the Self-timer

P A S M SCN

1 Select the self-timer mode.

: Self-timer set to 10 seconds

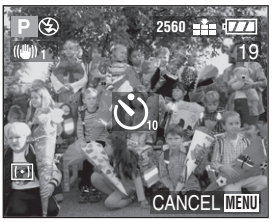
↓

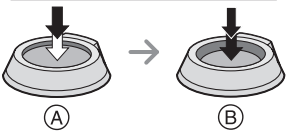
: Self-timer set to 2 seconds

↓

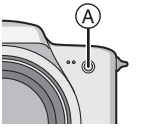
No display: cancelled

2 Take the picture.





- Ⓐ: Press the shutter button halfway to focus.
- Ⓑ: Press the shutter button fully to take the picture.



- The self-timer indicator Ⓐ blinks and the shutter is activated after 10 seconds (or 2 seconds).
- If you press the [MENU] button when the self-timer is set, the self-timer setting is cancelled.

- When using a tripod or in other cases, setting the self-timer to 2 seconds is a convenient way to avoid the jitter caused by pressing the shutter button.
- When you press the shutter button fully with one stroke, the subject is automatically focused just before the recording. In dark places, the self-timer indicator blinks and then it may turn on brightly to work as the AF assist lamp (P77) for focusing on the subject.
- In simple mode [♥], the self-timer is fixed to 10 seconds. (P34)
- When you set the self-timer in the burst mode, the camera starts taking a picture 2 or 10 seconds after the shutter button is pressed. The number of pictures taken at a time is fixed to 3.
- We recommend using a tripod when recording with the self-timer.

Compensating the Exposure

P A S SCN

Use this function when you cannot achieve appropriate exposure due to the difference of brightness between the subject and the background.

Under exposed

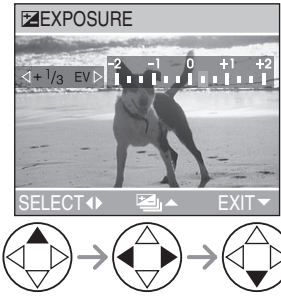
Compensate the exposure toward positive.

Properly exposed

Over exposed

Compensate the exposure toward negative.

1 Press ▲ several times until [EXPOSURE] appears and then compensate the exposure.



• You can compensate from −2 EV to +2 EV in steps of 1/3 EV.

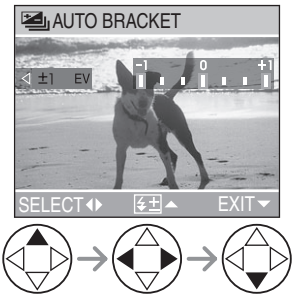
- EV is an abbreviation of Exposure Value, and it is the amount of light given to the CCD by the aperture value and the shutter speed.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- The exposure compensation value appears on the lower left of the screen.
- The set exposure value is memorised even if the camera is turned off.

Taking Pictures using Auto Bracket

PASM SCN

In this mode, 3 pictures are automatically recorded by each press of the shutter button according to the compensation range of the exposure.
You can select the desired exposure among the 3 types of pictures.

1 Press ▲ several times until [AUTO BRACKET] appears and then set the compensation range of the exposure.



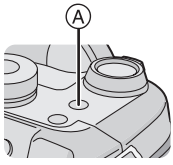
- You can select the exposure from −1 EV to +1 EV in steps of 1/3 EV.
- When you do not use auto bracket, select [OFF].
- When setting the auto bracket, the auto bracket icon appears on the lower left of the screen.

- If the remaining number of recordable pictures is 2 or less, you cannot take pictures by setting auto bracket.
- When taking pictures using auto bracket after the exposure compensation, the pictures are based on the compensated exposure.
  When the exposure is compensated, the compensated exposure value appears on the lower left of the screen.
- When the flash is activated, you can take only 1 picture.
- When the auto bracket is activated, [AUDIO REC.] cannot be used.
- When setting the quality to [TIFF], you cannot take pictures with the auto bracket.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- The exposure may not be compensated with auto bracket depending on the brightness of the subject.
- Auto bracket is cancelled after switching the camera off.
- When setting the auto bracket, the auto review function is activated regardless of the setting on the auto review function. (The picture is not enlarged.) Moreover, the settings for the auto review function on the [SETUP] menu are disabled.

Optical Image Stabilizer

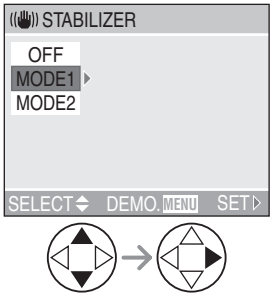
PASM SCN

This mode recognises and compensates jitter. You can reduce blurring caused by jitter especially when you take pictures with the optical zoom set to Tele or when you take pictures indoors where the shutter speed is slowed down.



Ⓐ: **Optical image stabilizer button**

1 Press the optical image stabilizer button Ⓐ until [STABILIZER] appears and then select the stabilizer function mode.



MODE1 (((hand)) 1)	The stabilizer operates continuously and can assist during photo composition.
MODE2 (((hand)) 2)	The stabilizer function is in standby and activates at the moment the shutter captures the image. This mode offers a greater degree of stabilization.
OFF (((hand)) OFF)	When image stabilization is not needed or when using the camera with a tripod.

■ **Demonstration of the optical image stabilizer (Demonstration Mode)**

When you press the [MENU] button, the demonstration appears. After the demonstration ends, the screen returns to the stabilizer function mode selection menu. If you want to exit the demonstration halfway through, press the [MENU] button again.

While the demonstration is displayed, the optical zoom is fixed to Wide (1×) and the zoom function cannot be activated. Moreover, you cannot take pictures.

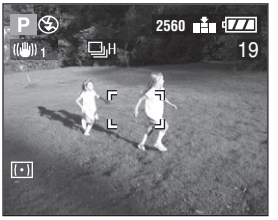
- The stabilizer function may not work sufficiently in the following cases.
  - When too much jitter occurs.
  - In digital zoom range.
  - When taking pictures while following subjects in motion.
  - When the shutter speed is extremely slow due to dark conditions or other reasons.

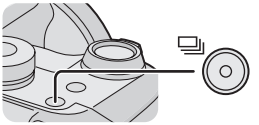
  Be careful of jittering when pressing the shutter button.
- In simple mode [♥], the stabilizer function mode is fixed to [MODE1] and the stabilizer function menu does not appear.
- In motion image mode [🎞], [MODE2] cannot be set.

Taking Pictures using Burst Mode

PASM SCN

1 Select the burst mode.





: High speed
↓
: Low speed
↓
: Unlimited*
↓
No display: cancelled

*Depending on the memory size, battery power, picture size and quality (compression)

■ **Number of pictures recorded in burst mode**

	Burst speed (pictures/second)*	Number of recordable pictures (pictures)	
	3	max. 4	max. 7
	2	max. 4	max. 7
	approx. 2	Depends on remaining capacity of the card	

*When the shutter speed is higher than 1/60 and the flash is not activated

- **When the burst mode setting is set to Unlimited**
  - – You can take pictures until the capacity of the card becomes full.
  - – The speed of taking pictures becomes slow during a recording.
- In simple mode [♥], the burst speed is fixed to Low. (P34)

- Hold down the shutter button fully to activate the burst mode.
- When the self-timer is used, the number of recordable pictures in burst mode is fixed to 3.
- You cannot take pictures in the burst mode when the quality is set to [TIFF].
- When the burst mode is activated, [AUDIO REC.] cannot be used.
- If the flash is activated, you can record only 1 picture.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- The ways to control the exposure and the white balance vary depending on the burst mode setting. When the burst speed is set to [ ], they are fixed to the values set for the first picture. (The burst speed is prioritised.) When the burst speed is set to [ ] or [ ], they are adjusted each time you take a picture.
- When setting the burst mode, the auto review function is activated regardless of the setting on the auto review function. (The picture is not enlarged.) Moreover, the settings for the auto review function on the [SETUP] menu are disabled.
- Burst mode is not cancelled when the camera is switched off.
- Burst mode will not perform as described if a MultiMediaCard is used in place of an SD Memory Card. The reading/writing speed of a MultiMediaCard is slower than that of an SD Memory Card.

Playing Back Pictures

1 Select the picture.

- ◄: Play back the previous picture.
- ►: Play back the next picture.
- The last recorded picture will be played back first.
- When [ROTATE DISP.] (P84) is set to [ON], pictures recorded by holding the camera vertically are played back vertically.

■ Fast forwarding/Fast rewinding

When you keep pressing ◄/► during playback, the file number and the page number are updated. If you release ◄/► when the number of the desired picture appears, you can play back the picture.

►: Fast forward

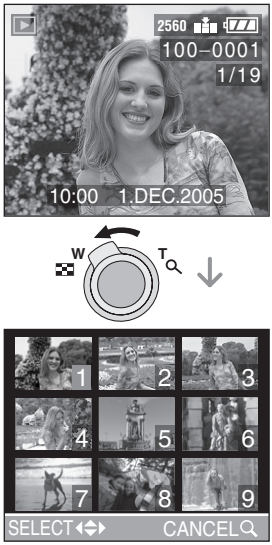
◄: Fast rewind

- When you keep pressing ◄/►, the number of files forwarded/rewound at a time is increased.
- If you release ◄/► and press them again, the files will be forwarded/rewound one by one.
- In review playback in the recording mode or multi playback, the picture can only be forwarded or rewound one by one.
- When you forward or rewind a large number of pictures, release ◄/► once before reaching the picture to be played back, then press ◄/► to forward/rewind pictures little by little.

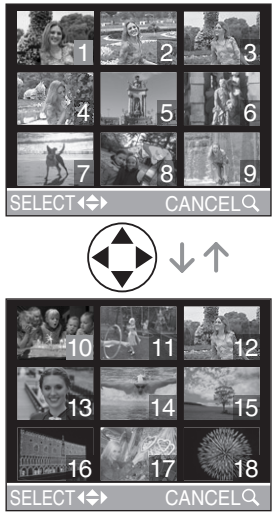
- This camera is based on the DCF standard (Design rule for Camera File system) which was established by the Japan Electronics and Information Technology Industries Association (JEITA).
- When changing the folder name or file name on a PC, the pictures will not be played back.
- The file format that can be played back with the camera is JPEG. (Even JPEG pictures cannot be played back in some cases.)
- When playing back pictures that have been recorded with other equipment, the picture quality may be deteriorated and pictures may not be played back.
- When playing back a non-standard file, the folder/file number is indicated by [—] and the screen may turn black.
- An interference fringe may appear on the screen depending on the subject. This is called moire. This is not a malfunction.

9 Pictures Multi Playback

1 Switch to multi screen.



2 Select the pictures.



■ To return to the normal playback

Rotate the zoom lever towards [🔍] or press the [MENU] button.

- The picture with the number coloured in orange appears.

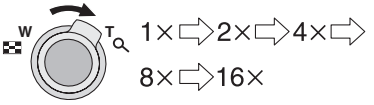
■ To delete a picture during a 9 pictures multi playback

Press the [🗑] button.
When the confirmation screen appears, press ▼ to select [YES], and press ►. (P52)

- Pictures will not be displayed in the rotated direction even if [ROTATE DISP.] is set to [ON] (P84).

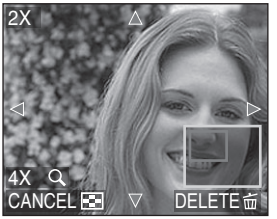
Using the Playback Zoom

1 Rotate the zoom lever towards [🔍] to enlarge the picture.



- When you rotate the zoom lever towards [▪] after the picture is enlarged, the magnification becomes lower. When you rotate the zoom lever towards [🔍], the magnification becomes higher.
- When you change the magnification, the zoom position indication Ⓐ appears for about 1 second to check the position of the section enlarged.
- When you press the [MENU] button, the magnification reverts to 1×.

2 Shift the picture.



- When you move the position to be displayed, the zoom position indication is displayed for about 1 second.

■ To delete a picture during playback zoom

Press the [🗑] button.
When the confirmation screen appears, press ▼ to select [YES], and press ►. (P52)

- When you use the zoom function on rotated pictures, they are not displayed in the rotated direction (P84).
- The more the picture is enlarged, the more its quality deteriorates.
- The playback zoom may not operate if pictures have been recorded with other equipment.
- Even if the indications on the screen are turned off in normal playback mode (P26), the magnification and enabled operations appear on the screen when the playback zoom is activated.
- You can switch whether you turn the indications on the LCD monitor on or off by pressing the [DISPLAY] button.
  When you set the magnification to 1×, the indications on the LCD monitor are displayed as in normal playback mode.

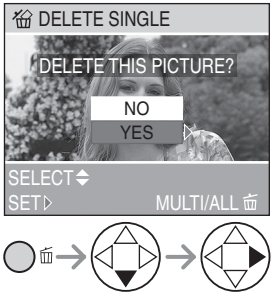
Deleting Pictures

■ To delete a single picture

1 Select the picture to be deleted.

- ◄: Play back the previous picture.
- ►: Play back the next picture.

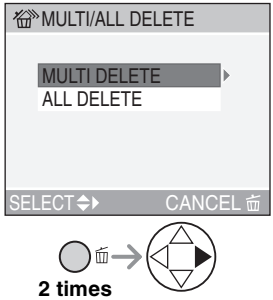
2 Delete the picture.



- While deleting the picture, [🗑] appears on the screen.

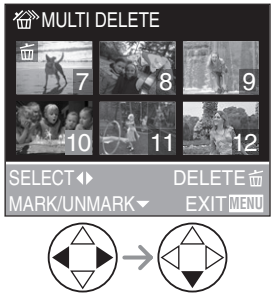
■ To delete multiple pictures

1 Select [MULTI DELETE].



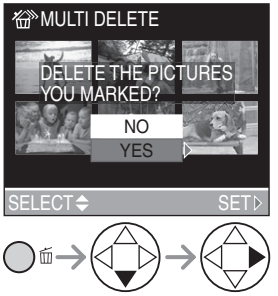
2 times

2 Select the pictures to be deleted.



- Repeat the above procedure.
- The selected pictures appear with [🗑]. When ▼ is pressed again, the setting is cancelled.
- The icon [🖼] blinks red if the selected picture cannot be deleted. Cancel the protect setting. (P87)

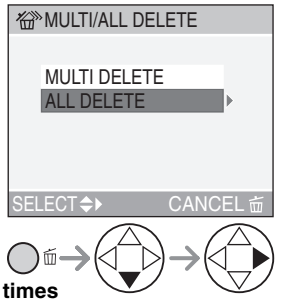
3 Delete the pictures.



- It is possible to delete up to 50 pictures all at once.

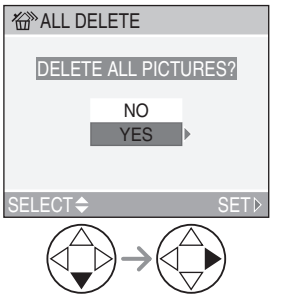
■ **To delete all pictures**

1 Select [ALL DELETE].



2 times

2 Delete all of the pictures.



- Once deleted, pictures cannot be recovered. Please double-check before deleting pictures.
- Do not turn off the camera while deleting.
- When you delete pictures, use a battery with sufficient battery power (P13) or use the AC adaptor (DMW-CAC1; optional).
- Pictures that are protected [ ] (P87) or do not conform to DCF standard (P49) will not be deleted even if [ALL DELETE] is selected.

Using the Mode Dial

A Aperture-priority AE

A

When you want the background to be in sharp focus, set the aperture value to a higher number. The higher the aperture value is the smaller the aperture opening will be. For a soft focus background, set the aperture value to a lower number which corresponds to a larger aperture opening.

1 Set the aperture value and take the picture.

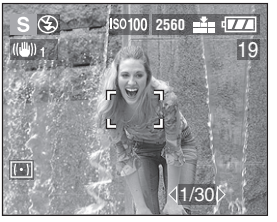
- Refer to P58 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide), 2 m – ∞ (Tele).
- If the subject is too bright, set to a larger aperture value, if too dim, set to a smaller aperture value.
- The brightness of the screen may differ from that of the actual pictures. Check it using review function or setting to the playback mode.
- The ISO sensitivity cannot be set to [AUTO]. (P72) (When the recording mode is switched to Aperture-priority AE, the ISO sensitivity is automatically set to [ISO100] even though it was set to [AUTO] beforehand. You can also change ISO setting from [ISO80], [ISO200] or [ISO400] on the menu.)
- When the exposure is not adequate, the aperture value and the shutter speed on the screen turn red.

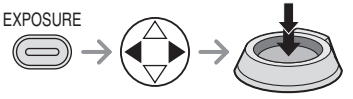
S Shutter-priority AE

S

When you want to take a sharp picture of a fast moving subject, set to a faster shutter speed. When you want to create a trail effect, set to a slower shutter speed.

1 Set the shutter speed and take the picture.



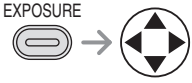


- Refer to P58 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide), 2 m – ∞ (Tele).
- The brightness of the screen may differ from that of the actual pictures. Check it using review function or setting to the playback mode.
- You cannot set the following items in Shutter-priority AE.
  - Slow sync./Red-eye reduction [S] (P39)
  - [AUTO] in ISO sensitivity (P72) (When the recording mode is switched to Shutter-priority AE, the ISO sensitivity is automatically set to [ISO100] even though it was set to [AUTO] beforehand. You can also change ISO setting from [ISO80], [ISO200] or [ISO400] on the menu.)
- When the exposure is not adequate, the aperture value and the shutter speed on the screen turn red.
- When the shutter speed is slow, we recommend using a tripod.

M Manual exposure

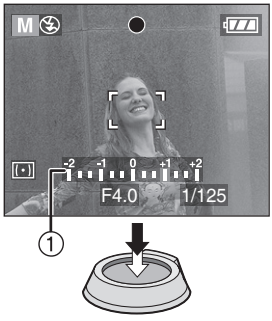
Decide the exposure by setting the aperture value and the shutter speed manually.

1 Set the aperture value and the shutter speed.



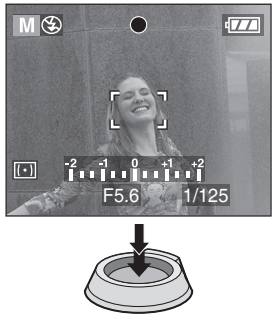
- ▲/▼: Aperture value
- ◄/►: Shutter speed

2 Press the shutter button halfway.



- Indication for the condition of exposure ① (manual exposure assistance) appears for about 10 seconds.
- When the exposure is not adequate, set the aperture value and the shutter speed again.

3 Take the picture.



■ Manual Exposure Assistance

	The exposure is adequate.
	Set to faster shutter speed or larger aperture value.
	Set to slower shutter speed or smaller aperture value.

- The manual exposure assistance is an approximation. We recommend taking pictures and then checking them using the review function.

- Refer to P58 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide), 2 m – ∞ (Tele).
- The brightness of the screen may differ from that of the actual pictures. Check it using review function or setting to the playback mode.
- If the exposure is not adequate, the aperture value and the shutter speed turn red when pressing the shutter button halfway.
- You cannot set the following items in manual exposure.
  - Slow sync./Red-eye reduction [ ] (P39)
  - [AUTO] in ISO sensitivity (P72) (When the recording mode is switched to Manual exposure, the ISO sensitivity is automatically set to [ISO100] even though it was set to [AUTO] beforehand. You can also change ISO setting from [ISO80], [ISO200] or [ISO400] on the menu.)
  - Exposure compensation (P44)
- Please set [HIGHLIGHT] to [ON] on the [SETUP] menu (P22) while the auto review or review function is activated. Any white saturated area on the picture will appear blinking in black and white. Adjust the aperture value or shutter speed to compensate for a better exposure.

■ Aperture Value and Shutter Speed

Aperture-priority AE

Available Aperture Value (Per 1/3 EV)			Shutter Speed (Sec.)
F8.0			1 – 1/2000
F7.1	F6.3	F5.6	1 – 1/1600
F5.0	F4.5	F4.0	1 – 1/1300
F3.6	F3.2	F2.8	1 – 1/1000

Shutter-priority AE

Available Shutter Speed (Sec.) (Per 1/3 EV)				Aperture Value
8	6	5	4	F2.8 – F8.0
3.2	2.5	2	1.6	
1.3	1	1/1.3	1/1.6	
1/2	1/2.5	1/3.2	1/4	
1/5	1/6	1/8	1/10	
1/13	1/15	1/20	1/25	
1/30	1/40	1/50	1/60	
1/80	1/100	1/125	1/160	
1/200	1/250	1/320	1/400	
1/500	1/640	1/800	1/1000	
1/1300				F4.0 – F8.0
1/1600				F5.6 – F8.0
1/2000				F8.0

Manual exposure

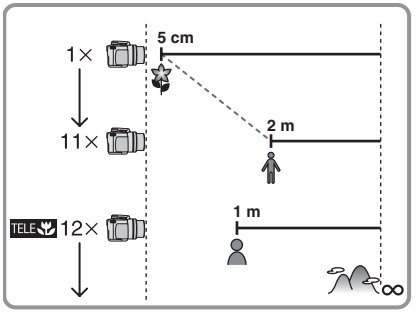
Available Aperture Value (Per 1/3 EV)	Available Shutter Speed (Sec.) (Per 1/3 EV)
F2.8 – F3.6	8 – 1/1000
F4.0 – F5.0	8 – 1/1300
F5.6 – F7.1	8 – 1/1600
F8.0	8 – 1/2000

- The aperture values in the table above are the values when the zoom lever is rotated to Wide at maximum.
- Some of the aperture values cannot be selected depending on the zoom magnification.

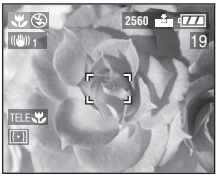
Macro mode

This mode allows you to take close-up pictures of the subject, e.g. When taking pictures of flowers.
You can take pictures approaching the subject at a distance up to 5 cm from the lens by rotating the zoom lever upmost to Wide (1×). When you rotate the zoom lever to Tele, the distance you can approach varies in stages. The recordable range can be changed up to 2 m (when the zoom magnification is 11×).

■ Focus range



■ Tele-macro function



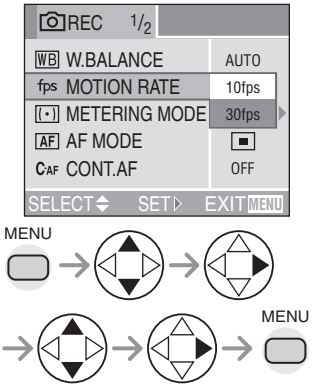
When you rotate the zoom lever upmost to Tele (12×), you can take pictures approaching the subject at a distance up to 1 m from the lens. (The tele-macro icon [TELE] appears.) It is convenient when taking close-up pictures of flowers blooming near the ground while standing up or when taking close-up pictures of insects from a distant position.

- We recommend using a tripod.
- When the subject is close to the camera, the effective focus range (depth of field) is much narrowed. Therefore, you will have difficulty in focusing on the subject if the distance between the camera and the subject is changed after the subject is focused.
- In the tele macro mode, the depth of field is extremely narrowed and jitters occur easier than usual. Therefore, when you cannot use a tripod, we recommend taking pictures under the brightness in which the aperture value is set to F4.0 or larger and the shutter speed is set to 1/125th or faster to keep the depth of field and the performance of the stabilizer function.
- When the camera lens is at a distance beyond the available range from the subject, the subject may not be focused even if the focus indication lights.
- The available flash range is about 30 cm – 4.5 m (Wide). (This is applied when you set the ISO sensitivity to [AUTO].)
- If you focus on the subject at 2 m or less distant position with tele-macro function when setting the optical zoom magnification in 12× and then rotate the zoom lever for setting the optical zoom magnification to 11× or less, the subject becomes unfocused. In this case, press the shutter button halfway or operate the camera to focus on the subject again.
- When you take pictures at close range in macro mode, the resolution of the peripheral of the picture may be slightly decreased. However, this is not a malfunction.

Motion image mode

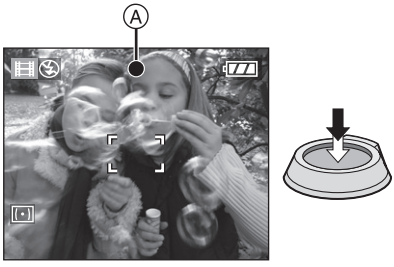
This mode allows you to record motion images.

1 Select [MOTION RATE].



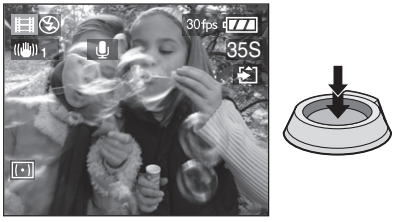
- [10fps]:
  Recording motion images for a longer time is available though the quality will be less than the quality recorded at [30fps]. The file size is smaller, so the files are suitable to be attached to e-mails.
- [30fps]:
  The motion of the recorded image is smooth, but the file size is large.
- fps (frame per second); This refers to the number of frames used in 1 second.
- Close the menu by pressing the shutter button halfway or the [MENU] button after finishing the setting.

2 Press the shutter button halfway.



- When the subject is focused, the focus indication Ⓐ lights.

3 Press the shutter button fully to start the recording.



- The remaining recording time (approximation) appears on the screen.
- The audio recording starts simultaneously from the built-in microphone of the camera.
- By pressing the shutter button fully again, the recording stops.
- If the card becomes full during recording, the camera stops automatically.

■ **Available recording time (seconds)**

SD Memory Card	Motion rate	
	10fps	30fps
16 MB	75	25
32 MB	160	55
64 MB	350	120
128 MB	720	240
256 MB	1440	480
512 MB	2870	980
1 GB	5700	1950

• The recordable time is an approximation.

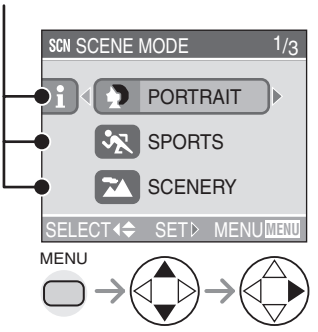
- The picture size is fixed to 320×240 pixels.
- The motion images cannot be recorded without audio.
- If using a MultiMediaCard, after recording motion images, the card access indication may appear for a while, but this is not a malfunction. The file is being loaded to the MultiMediaCard.
- The settings of auto focus/zoom/aperture values are fixed to what they are when recording starts (in the first frame).
- Depending on the type of the card, recording may stop while you are recording motion images.
- When motion images recorded with the camera are played back on other equipment, the quality of pictures and sounds may be deteriorated or it may not be possible to play them back.
- Motion images recorded with setting [MOTION RATE] to [30fps] on the camera cannot be played back on a camera which does not support [30fps] of motion rate.
- In motion image mode [ ], you cannot use the direction detection function and the review function.
- You cannot set [MODE2] on the optical image stabilizer function.

SCN Scene mode

SCN

Set the mode dial to the scene mode to display the scene menu.
When [SCENE MENU] on the [SETUP] menu (P22) is set to [OFF], press the [MENU] button to display the scene menu.

Menu items



- When you press ◄, the explanations for each scene mode are displayed. (When you press ►, the screen returns to the scene menu.)
- When rotating the zoom lever toward T or W, the page of the menu screen can be forwarded or reversed.
- If you press the [MENU] button while the scene menu is displayed, you can set the [REC] mode menu (P69) and the [SETUP] menu (P22).

: [PORTRAIT] (P63)

: [SPORTS] (P63)

: [SCENERY] (P64)

: [NIGHT SCENERY] (P64)

: [NIGHT PORTRAIT] (P65)

: [PANNING] (P65)

: [FIREWORKS] (P66)

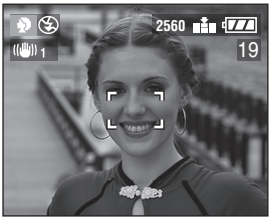
: [PARTY] (P67)

: [SNOW] (P68)

- When you take pictures with a scene mode which is not adequate for the purpose, the hue may differ from the actual scene.
- When you want to change the brightness of the picture to be recorded, compensate the exposure. (P44)
- The following functions cannot be set in scene mode.
  - White balance (P70)
  - ISO sensitivity (P72)
  - Metering mode (P74)
  - Colour effect (P79)
  - Picture adjustment (P79)

Portrait mode

Select this mode when you want to take pictures of people.
This mode allows you to make the subject stand out from an unfocused background and adjust the exposure and the hue to achieve a healthy complexion on the subject.



■ Technique for Portrait mode

To make this mode more effective:

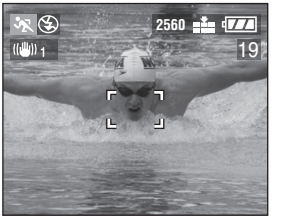
1 Rotate the zoom lever to Tele as far as possible.

2 To maximize the effect, select a background as far as possible from the camera, and get closer to the subject.

- This mode is suitable for outdoors in the daytime.
- The ISO sensitivity is fixed to [AUTO].

Sports mode

This mode allows you to take pictures of a fast moving subject. (e.g. When taking pictures of outdoor sports.)



■ Technique for Sports mode

To take a sharp picture of a fast moving subject, the shutter speed becomes faster than usual. This mode is more effective when taking pictures in the daytime on a clear day.

- This mode is suitable for outdoors in the daytime, keeping 5 m or more away from the subject.
- The ISO sensitivity is fixed to [AUTO].

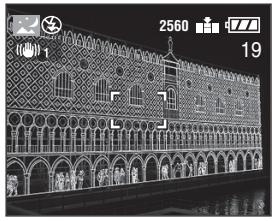
Scenery mode

This mode allows you to take a picture of a wide landscape. The camera focuses on a distant subject preferentially.

- The focus range is 5 m – ∞.
- The ISO sensitivity is fixed to [AUTO].
- The flash setting is fixed to Forced OFF [ ].
- The setting on the AF assist lamp is disabled.

Night scenery mode

This mode allows you to take a picture of a nightscape. The landscape can be recorded vividly by slowing down the shutter speed.



■ Technique for Night scenery mode

- Since the shutter speed becomes slow (max. about 8 sec.), use a tripod.

- The focus range is 5 m – ∞.
- The shutter may be kept closed (max. about 8 sec.) after taking a picture because of signal conditioning, but it is not a malfunction.
- When you take pictures in dark places, noise may become visible.
- The ISO sensitivity is fixed to [ISO80].
- The flash setting is fixed to Forced OFF [ ].
- The settings on the AF assist lamp and the continuous AF are disabled.

Night portrait mode

This mode allows you to take pictures against a night landscape. The subject can be recorded with brightness in real life by using the flash and slowing down the shutter speed.

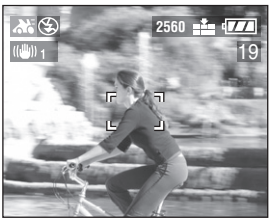
■ Technique for Night portrait mode

- Open the flash. (P39)
- Since the shutter speed becomes slow, we recommend using a tripod.
- Keep the subject still for about 1 second when taking a picture.
- We recommend taking pictures by rotating the zoom lever to Wide (1×) and being at a distance about 1.5 m from the subject.

- The focus range is 1.2 m – 5 m (Wide), 2 m – 5 m (Tele). (Refer to P40 for the flash control range.)
- Be sure to close the flash when not in use.
- The shutter may be kept closed (max. about 1 sec.) after taking a picture because of signal conditioning, but it is not a malfunction.
- When you take pictures in dark places, noise may become visible.
- When the flash is set, the flash setting is fixed to Slow sync./Red-eye reduction [ ] and the flash is always activated.
- The ISO sensitivity is fixed to [AUTO].
- The setting on the continuous AF is disabled.

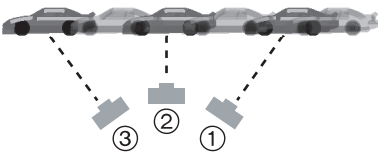
Panning mode

When you take a picture following the motion of a subject which moves in a certain direction such as a runner or a car, the background will show some motion blur. This special effect is called “panning”. This mode allows you to obtain this effect easier.



■ Technique for Panning mode

To achieve good pictures in panning mode, pick a horizontal plane – and then pan as you fire shots.



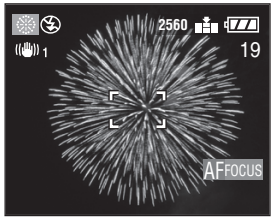
① Move the camera smoothly while tracking a subject in motion.
② Press the shutter button while moving the camera.
③ Keep moving the camera continuously.

- Be careful of the following:
  – Use the Viewfinder. (P26)
  – Select a subject with quick motion.
  – Prefocus to the point where the subject will arrive. (P76)
  – Use this mode with burst mode. (P47) Select the best picture from the pictures taken.

- In panning mode, the shutter speed becomes slower than usual to achieve the panning effect. As a result, jitter can easily occur.
- Panning function does not work well in the following situations.
  – Very bright scenes such as daytime in summer. We recommend using an ND filter (DMW-LND55; optional). (P102)
  – When the shutter speed is faster than 1/100th.
  – When the subject moves slowly and the tracking speed is too slow. (The background cannot be recorded dynamically.)
- The stabilizer function is fixed to [MODE1]. In panning mode, only vertical jitters can be compensated.
- The ISO sensitivity is fixed to [ISO80].
- The settings on the AF assist lamp and the continuous AF are disabled.

Fireworks mode

This mode allows you to take beautiful pictures of fireworks exploding in the night sky. The shutter speed or the exposure is automatically adjusted for taking pictures of fireworks.



■ Technique for Fireworks mode

We recommend following the prefocus procedure below to ensure that you do not miss the chance to take pictures.

1. Set the [AF TRIGGER] to [FOCUS]. (P76)
2. Aim the camera at an object (such as illumination on a building), which is roughly the same distance as the point of fireworks.
3. Press the [FOCUS] button until the focus indication (P76) lights.
4. Aim the camera at the direction where the fireworks will be exploding.
5. Press the shutter button fully when fireworks are exploding.

- When you zoom away from or towards the subject, repeat steps 2 – 5 since the focus position becomes misaligned.
- We recommend using a tripod.

- When the auto focus is activated, the available recording range is 5 m – ∞. (We recommend following steps 1 to 5 on the previous page to take pictures with prefocus.)
- The ISO sensitivity is fixed to [AUTO].
- The settings on the AF assist lamp and the continuous AF are disabled.
- The flash setting is fixed to Forced OFF [ ].

Party mode

This mode allows you to take a picture according to the atmosphere of the situation (e.g. a wedding reception, a party in a room, etc.).
Both the people and the background can be recorded with brightness in real life by using the flash and slowing down the shutter speed.

■ Technique for Party mode

- Open the flash. (P39)
- Since the shutter speed becomes slow, we recommend using a tripod.
- We recommend taking pictures by rotating the zoom lever to Wide (1×) and being at a distance about 1.5 m from the subject.

- When the flash is activated, the flash setting can be set to Forced ON/Red-eye reduction [ ] or Slow sync./Red-eye reduction [ ].
- The ISO sensitivity is fixed to [AUTO].

Snow mode

This mode allows you to take a picture in locations such as skiing resorts and locations near snowy mountains. The exposure and the white balance are adjusted to make the white colour of the snow stand out.

- The ISO sensitivity is fixed to [AUTO].

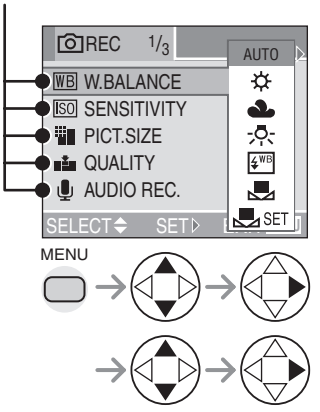
Using the [REC] mode menu

P A S M SCN

Setting the hue, picture quality adjustment, etc. allows you to create wide variations on taking pictures.

- Set the mode dial to the desired recording mode.

Menu items



- When rotating the zoom lever toward T or W, the page of the menu screen can be forwarded or reversed.
- Close the menu by pressing the shutter button halfway or the [MENU] button after finishing the setting.

WB : [W.BALANCE] (P70)

ISO : [SENSITIVITY] (P72)

: [PICT.SIZE] (P73)

: [QUALITY] (P73)

: [AUDIO REC.] (P74)

: [METERING MODE] (P74)

AF : [AF MODE] (P75)

C AF : [CONT.AF] (P76)

AF : [AF TRIGGER] (P76)

AF : [AF ASSIST LAMP] (P77)

: [D.ZOOM] (P78)

: [COL.EFFECT] (P79)

: [PICT.ADJ.] (P79)

: [FLIP ANIM.] (P79)

White Balance [W.BALANCE]

P A S M

This function allows you to reproduce a white colour closer to the tone in real life on the pictures recorded under sunlight, halogen lighting, etc. in which the white colour may appear reddish or bluish.

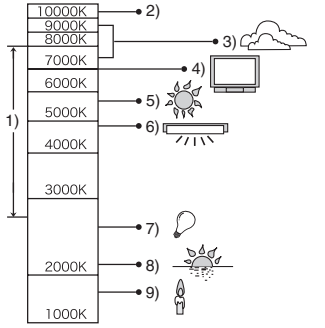
AUTO	for auto setting (auto white balance)
(Daylight)	for recording outdoors on a bright day
(Cloudy)	for recording under a cloudy sky or shaded area
(Halogen)	for recording under halogen lighting
(Flash)	for taking a picture with photo flash only
(White set)	for using the preset white balance
SET (White set)	for setting the white balance again (P71)

- When setting the white balance to the mode except [AUTO], you can finely adjust the white balance.

■ Auto White Balance

Use of auto white balance adjustment in inappropriate lighting conditions may result in reddish or bluish pictures. Where the subject is surrounded by many light sources, auto white balance adjustment may not operate properly.
In this case, set the white balance to a mode except [AUTO] manually.

1 The range that is controlled by the auto white balance adjustment mode of the camera
2 Blue sky
3 Cloudy sky (Rain)
4 TV screen
5 Sunlight
6 White fluorescent light
7 Incandescent light bulb
8 Sunrise and sunset
9 Candlelight



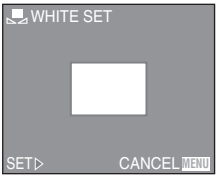
K=Kelvin Colour Temperature

■ Setting the White Balance manually (White set [SET])

Use this mode when you want to set the white balance manually.

1 Set to [SET] (White Set) and then press ►.

2 Aim the camera at a sheet of white paper or a similar white object so that the frame in the centre is filled by the white object only and then press ►.

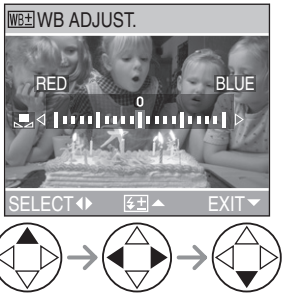


■ Finely Adjusting the White Balance (White Balance Fine Adjustment [WB±])

When you cannot acquire the desired hue by setting the white balance, you can adjust the white balance finely.

1 Set the white balance to [☼]/[☁]/[☼]/[WB]/[SET]. (P70)

2 Press ▲ several times until [WB ADJUST.] appears.



3 Finely adjust the white balance.

- ► [BLUE]: Press when the hue is reddish.
- ◄ [RED]: Press when the hue is bluish.

About the white balance

- In simple mode [♥], the white balance is fixed to [AUTO].
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [☼] (Daylight) and [WB] (Flash)], but the white balance may not be properly adjusted if the flash level is insufficient.

About the white balance fine adjustment

- The white balance icon on the screen turns red or blue.
- You can set the value independently for each of the modes in white balance.
- The setting on the fine adjustment of the white balance is reflected to the picture when taking a picture with the flash.
- When you set the white balance using the White set [SET], the adjustment level is set to “0”.
- When the colour effect is set to any of [COOL], [WARM], [B/W] or [SEPIA] (P79), you cannot finely adjust the white balance.

ISO Sensitivity [SENSITIVITY]

P A S M

ISO sensitivity represents the sensitivity to light in values. If you set the ISO sensitivity higher, the camera becomes more suitable for recording in dark places.

- When setting to [AUTO], the ISO sensitivity is automatically adjusted from [ISO80] to [ISO200] according to the brightness. (It can be adjusted from [ISO100] to [ISO400] when using the flash.)

ISO sensitivity	**80 ⟷ 400**	
Use in bright places (e.g. outdoors)	Suitable	Not suitable
Use in dark places	Not suitable	Suitable
Shutter speed	Slow	Fast
Noise	Less	Increased

- In simple mode [♥], motion image mode [🎞] or scene mode (P62), ISO sensitivity is fixed to [AUTO]. (In [NIGHT SCENERY] and [PANNING] in scene mode, it is fixed to [ISO80].)
- You cannot select [AUTO] in Aperture-priority AE, Shutter-priority AE and Manual exposure mode.
- To avoid picture noise, we recommend decreasing the ISO sensitivity or setting [PICT.ADJ.] to [NATURAL]. (P79)
- Refer to P58 for the shutter speed.

Picture Size [PICT.SIZE]

P A S M SCN

When you select a larger picture size, you can print pictures clearly.
When you select a smaller picture size (640×480 pixels), you can record more pictures. In addition, it is convenient to attach the picture to an e-mail or post it on a website because the file size is small.

2560	2560×1920 pixels
2048	2048×1536 pixels
1600	1600×1200 pixels
1280	1280×960 pixels
640	640×480 pixels
HDTV	1920×1080 pixels

- For details on how to playback pictures recorded using [HDTV] mode on a High-Definition TV (HDTV has a 16:9 aspect), refer to P94.
- Both ends of the pictures recorded using [HDTV] mode may be cut off in printing. Check the picture before printing. (P110)

- In motion image mode [🎞] or when a flip animation is created, the picture size is fixed to 320×240 pixels.
- Pictures may appear like a mosaic depending on the subject or the recording condition.
- The number of recordable pictures depends on the subject.
- The number of remaining pictures displayed on the screen may not correspond with recorded frames.
- Refer to P17 for the number of recordable pictures.

Quality [QUALITY]

P A S M SCN

You can select 3 types of quality (compression rate) according to the usage of the picture.

TIFF	TIFF (Uncompressed): This type is suitable when editing and processing pictures with retouch software.
	Fine (Low compression): This type gives priority to picture quality. Picture quality will be high.
	Standard (High compression): This type gives priority to the number of recordable pictures and records standard quality pictures.

- When the quality is set to [TIFF], a JPEG picture with the quality equal to Standard is created at the same time.
- Pictures may appear like a mosaic depending on the subject or the recording condition.
- The number of recordable pictures depends on the subject.
- The number of remaining pictures displayed on the screen may not correspond with recorded frames.
- The following functions cannot be used for pictures recorded in [TIFF].
  – [AUDIO DUB.]
  – [RESIZE]
  – [TRIMMING]
- The following functions cannot be used when setting the quality to [TIFF].
  – Auto bracket
  – Burst mode
  – [AUDIO REC.]
- Refer to P17 for the number of recordable pictures.

Audio Recording [AUDIO REC.]

P A S M SCN

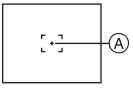
You can take a picture with audio.

- When you set [AUDIO REC.] to [ON], [ ] appears on the screen.
- When you start recording by focusing on the subject and pressing the shutter button, the audio recording will be automatically stopped in about 5 seconds. There is no need to keep pressing the shutter button.
- Audio is recorded from the built-in microphone of the camera.
- If you press the [MENU] button during the audio recording, the audio recording will be cancelled. The audio cannot be recorded.
- You cannot record pictures with audio in auto bracket, burst mode or when the quality is set to [TIFF].
- When audio is recorded with each picture, the total number of pictures that can be stored on each card will slightly decrease.

Metering Mode [METERING MODE]

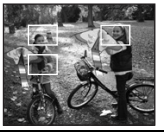
P A S M

You can switch to the following metering modes.

	Multiple: This is the method in which the camera measures the most suitable exposure by judging the allocation of brightness on the whole screen automatically. Usually, we recommend using this method.
	Centre weighted: This is the method used to focus on the subject on the centre of the screen and measure the whole screen evenly.
	Spot: This is the method to measure the subject in the spot metering target Ⓐ. 

AF Mode [AF MODE]

P A S M SCN

	9-area-focusing: The camera focuses on any of 9 focus areas. You can record a picture in free composition without limiting the position of the subject. 
H	3-area-focusing (high speed): The camera focuses on any of the left, centre and right of the screen.
H	1-area-focusing (high speed): The camera focuses on the subject in AF area on the centre of the screen.
	1-area-focusing: The camera focuses on the subject in AF area on the centre of the screen.
•	Spot-focusing: The camera focuses on the limited and narrow area in the screen.

■ High speed AF (H) mode

When you select 3-area-focusing (high speed) or 1-area-focusing (high speed), the auto focus is activated in high speed and you can focus on the subject more quickly. Pictures may become still in the condition they were in before the subject was focused when you press the shutter button. However, it is not a malfunction. If you do not want to make pictures still during the auto focus, use the AF mode other than 3-area-focusing (high speed) mode and 1-area-focusing (high speed) mode.

- When using the digital zoom or when you take pictures in dark places, the AF area is displayed on the centre of the screen with a size wider than usual.

- When multiple AF areas (max. 9 areas) light at the same time, the camera is focusing on all the AF areas.
  The focus position is not predetermined because it is set to the position that the camera automatically determines at the time of focusing. If you want to determine the focus position to take pictures, switch the AF mode to 1-area-focusing mode.

C-AF Continuous AF [CONT.AF]

P A S M SCN

This mode allows you to compose a picture more easily by always focusing on the subject.
When the AF mode is set to 1-area-focusing, 1-area-focusing (high speed) or spot-focusing, the time required for focusing when pressing the shutter button halfway will be reduced.

- When it is set to [ON], the [C-AF] indication appears.

- The battery may be consumed faster than usual.
- It may take time to focus on the subject after rotating the zoom lever from Wide to Tele or suddenly changing the subject from a distant one to a nearby one.
- Press the shutter button halfway again when it is difficult to focus on the subject.

AF AF Trigger [AF TRIGGER]

P A S M SCN

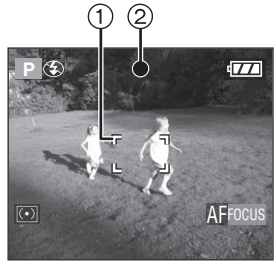
When taking a picture with prefocus, set the button for starting AF (Auto focus) to [FOCUS] on [AF TRIGGER].
Prefocus is a technique to focus on the point where you take a picture of the subject with quick motion.
This function is suitable when the distance between the camera and the subject is pre-determined.

	When you press the shutter button halfway, the Auto focus is activated.
FOCUS	When you press the [FOCUS] button, the Auto focus is activated.

■ **Procedure for recording with prefocus using [FOCUS] button**

1 Aim the AF area to the point where you want to focus. (P30)

2 Press the [FOCUS] button.
When the subject is focused, the AF area ① turns from white to green and the focus indication ② lights up for about 1 second.
If the subject is out of focus, the AF area turns from white to red and the focus indication blinks for about 1 second.
The focus will not be changed unless you press the [FOCUS] button again.



When you press the shutter button halfway, [AFFOCUS] indication disappears and then the aperture value and the shutter speed are displayed.
When you press the shutter button halfway without pressing the [FOCUS] button, the [AFFOCUS] indication turns red.

3 When the subject is enclosed within the focused area, press the shutter button to take a picture.

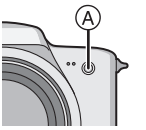
- When taking pictures normally, set the AF Trigger to [◎]. When you need to focus on the subject before recording such as prefocus, set to [FOCUS]. After you complete recording with prefocus, set the AF Trigger to [◎] again.

- In simple mode [♥], the AF Trigger is automatically set to [◎].

AF* AF Assist Lamp [AF ASSIST LAMP]

P A S M SCN ♥

Illuminating the subject with the AF assist lamp allows the camera to focus on the subject in low light conditions.
When you press the shutter button halfway in dark places or other situations, an AF area wider than usual appears and the AF assist lamp Ⓐ turns on.



ON	The AF assist lamp turns on under low light conditions. In this time, the AF assist lamp icon [AF*] appears on the screen. The effective range of the AF assist lamp is 1.5 m.
OFF	The AF assist lamp does not turn on.

- Be sure of the following points when the AF assist lamp is in use.
  - Do not look in to the AF assist lamp closely.
  - Detach the lens hood.
  - Do not cover the AF assist lamp with your fingers.
  - The battery may be consumed faster than usual.
- In simple mode [♥], the setting on the [AF ASSIST LAMP] is fixed to [ON].
- You cannot use the AF assist lamp in [SCENERY], [NIGHT SCENERY], [PANNING] and [FIREWORKS] in scene mode (P62).
- When you do not want to use the AF assist lamp (e.g. when you take a picture of a subject in a dark place), set the [AF ASSIST LAMP] to [OFF]. In this case, it becomes difficult to focus on the subject.
- The AF area is set only to a point on the centre of the screen when the AF assist lamp is turned on.
- A vignetting effect may appear on the circumference of the AF assist lamp because the AF assist lamp may be obscured by the lens, however, this does not cause a problem with the performance of the camera.

Digital Zoom [D.ZOOM]

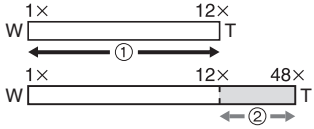
P A S M SCN

It is possible to further magnify a subject already magnified 12 times with the optical zoom 4 more times with the digital zoom, thereby reaching a maximum of 48 times.

■ Entering the digital zoom range

When you rotate the zoom lever to the extreme Tele position, the on-screen zoom indication may momentarily pause. This is not a malfunction.

You can enter the digital zoom range by continuously rotating the zoom lever to Tele or releasing the zoom lever once and then rotate it to Tele again.



① Optical zoom
② Digital zoom

- When using the digital zoom, the picture quality becomes deteriorated.
- In the digital zoom range, the stabilizer function may not be effective.
- We recommend using a tripod.
- The indicated zoom magnification is an approximation.
- The AF area is displayed with a size wider than usual and set only to a point on the centre of the screen in the digital zoom range. (P75)

Colour Effect [COL.EFFECT]

P A S M

You can use 4 types of colour effects depending on the atmosphere of the picture.

COOL	The picture becomes bluish.
WARM	The picture becomes reddish.
B/W	The picture becomes black and white.
SEPIA	The picture becomes sepia.

Picture Adjustment [PICT.ADJ.]

P A S M

Use this function according to the recording situation and the atmosphere of the picture.

NATURAL	The picture becomes softer.
VIVID	The picture becomes sharper.

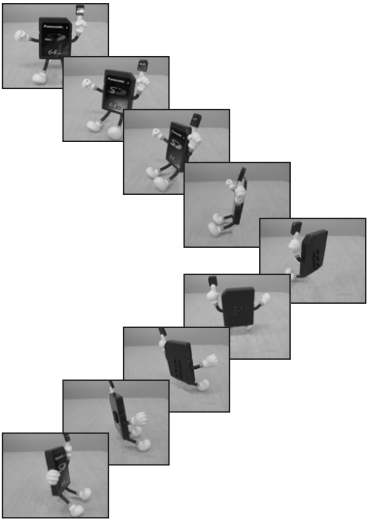
- When you take pictures in dark places, noise may become visible. To avoid noise, we recommend setting [PICT.ADJ.] to [NATURAL].

Flip Animation [FLIP ANIM.]

P A S M SCN

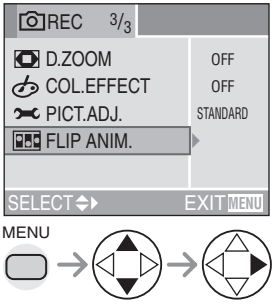
This camera allows you to create motion picture files up to 20 seconds long by connecting images recorded in flip animation mode.

Example:
When capturing images of the subject in sequence moving the camera little by little and aligning the images, the subject looks as if it is moving.

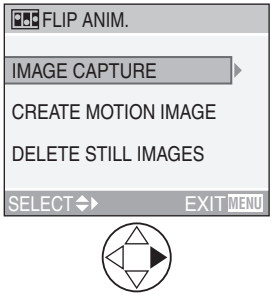


- You can play back created flip animations with the same method used to play back motion images. (P82)

1 Select [FLIP ANIM.].

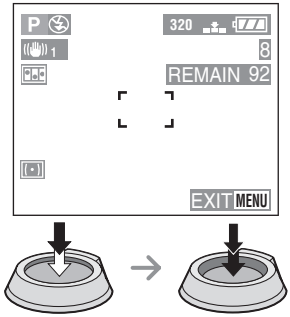


2 Select [IMAGE CAPTURE].



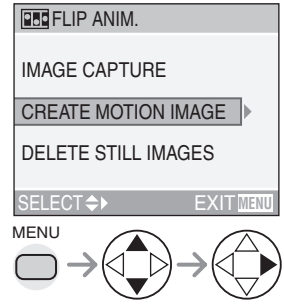
- The picture size is 320×240 pixels.

3 Capture images for flip animation.

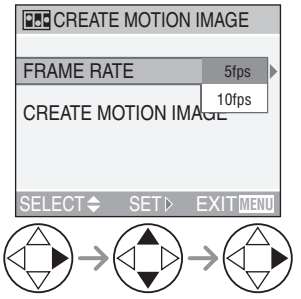


- You can check the recorded image with ▼ and the previous or following image with ◄/►.
- Delete unnecessary images with [🗑] button.
- You can record up to 100 pictures. The number of recordable pictures displayed is an approximation.

4 Select [CREATE MOTION IMAGE].

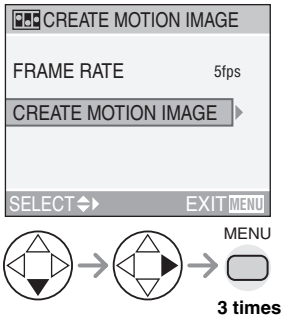


5 Select [FRAME RATE] and set the number of frames.



5fps	5 frames/sec.
10fps	10 frames/sec. (The motion images become smoother.)

6 Select [CREATE MOTION IMAGE] and create a flip animation.



- The file number appears after creating a flip animation.

■ Deleting all still images used to create flip animation

When selecting [DELETE STILL IMAGES] in [FLIP ANIM.] menu, a confirmation screen appears. Select [YES] with ▼ and then press ►.

- You cannot use the direction detection function, burst mode, auto bracket and [AUDIO REC.].
- The images in each frame do not appear in normal review. (P37)
- If you execute [CREATE MOTION IMAGE], flip animation is made from all pictures recorded for flip animation. Delete unnecessary pictures.
- Audio cannot be recorded.
- You cannot record audio using the audio dubbing. (P89)
- Flip animations may not be played back by other equipment.
- The audio is not recorded on flip animations, however, you may hear varying levels of noises when you play back flip animations with other equipment which does not have a mute function.

Playing Back Pictures with Audio/Motion Images

■ **Pictures with audio**

Select the picture with audio icon [ ] and play back the audio.

■ **Motion images**

Select the picture with the motion image icon [ ] and play back the motion images.

- The cursor displayed during playback corresponds to ▲/▼/◄/►.
- Motion image playback stops and the normal playback is restored by pressing ▼.

■ **Fast forwarding/Fast rewinding**

During motion image playback, keep pressing ◄/►.

►: Fast forward

◄: Fast rewind

- When releasing the button, it turns to normal motion image playback.

■ **To pause**

Press ▲ during motion image playback.

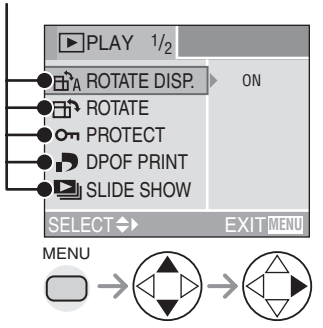
- Press ▲ again to cancel pause.

- You can hear audio from the speaker. To adjust the sound volume, refer to P24.
- The picture with audio cannot be resized (P90) or trimmed (P91).
- You cannot use the zoom function while playing back or pausing motion images.
- The file format that can be played back with the camera is QuickTime Motion JPEG.
- Some QuickTime Motion JPEG files recorded by a PC or other equipment may not be played back with the camera.
- When playing back motion images that have been recorded with other equipment, the quality of images may be deteriorated or it may not be possible to play them back.
- When using a high capacity card, it is possible that fast rewinding may be slower than usual.

Using the [PLAY] mode menu

You can use various functions in playback mode such as a rotating function or protections for recorded pictures.

Menu items



- When rotating the zoom lever toward T or W, the page of the menu screen can be forwarded or reversed.
- After selecting a menu item with the operation described above, make settings for each menu.

: [ROTATE DISP.] (P84)

: [ROTATE] (P84)

: [PROTECT] (P87)

: [DPOF PRINT] (P85)

: [SLIDE SHOW] (P88)

: [AUDIO DUB.] (P89)

: [RESIZE] (P90)

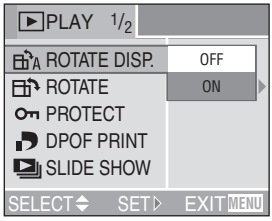
: [TRIMMING] (P91)

: [FORMAT] (P93)

Displaying pictures in a direction at the time of recording [ROTATE DISP.]

This mode allows you to display pictures recorded by holding the camera vertically or pictures rotated in [ROTATE] function in the rotated direction.

1 Select [ON] to set it.



- When you select [OFF], the pictures are displayed without being rotated.
- Refer to P49 for how to play back pictures.

- When you take pictures by holding the camera vertically, read “Tips for taking good pictures” on P31 carefully.
- The direction detection function (P32) may not work properly on pictures recorded by aiming the camera up or down.
- Only still pictures in normal playback can be rotated. When playing back rotated pictures in zoom playback or multi playback, pictures appear in original orientation.
- You can rotate and display pictures by using [ROTATE] function even if you do not take pictures by holding the camera vertically.

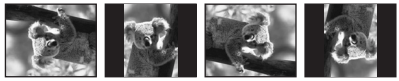
Rotating the Picture [ROTATE]

You can rotate the recorded pictures in steps of 90° and display them.

■ **Example**

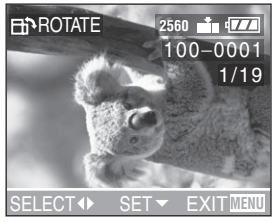
When rotating clockwise (↷)

Original picture



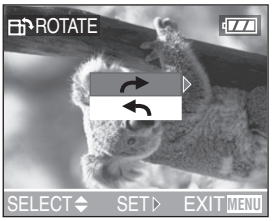
0° 90° 180° 270°

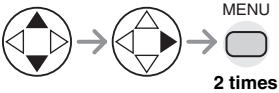
1 Select the picture to be rotated and set it.



- Pictures recorded in motion image mode [🎞] and protected pictures cannot be rotated.

2 Select the direction to rotate the picture.





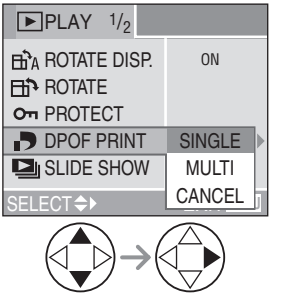
	The picture rotates clockwise in steps of 90°.
	The picture rotates counter-clockwise in steps of 90°.

- When you play back pictures on a PC, you cannot play back pictures keeping the rotated direction without an OS or software compatible with Exif.
- Exif is the file format for still pictures, to which recording information and other can be added, established by JEITA [Japan Electronics and Information Technology Industries Association].
- When [ROTATE DISP.] is set to [OFF], [ROTATE] function is disabled.
- When pictures are recorded by holding the camera vertically, the pictures are played back vertically (the pictures are rotated).

Setting the Picture to be Printed and the Number of Prints [DPOF PRINT]

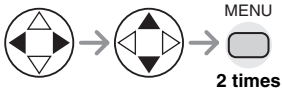
DPOF (Digital Print Order Format) is a system that allows the user to select which pictures are to be printed, how many copies of each picture will be printed or whether the recording date is to be printed on compatible photo printers or commercial photo printing services.
For details, ask photo printing servicer.

1 Select [SINGLE], [MULTI] or [CANCEL].



■ **Single setting**

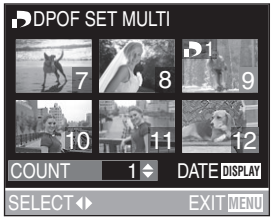
Select the picture and set the number of prints.



- The number of prints can be set from 0 to 999.
- The number of prints icon [ ] appears.
- When the number of prints is set to “0”, DPOF print setting is cancelled.

■ **Multi setting**

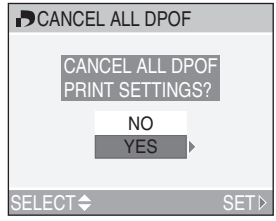
Select the pictures and set the number of prints.

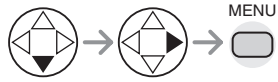


- Repeat the above procedure.
- The number of prints can be set from 0 to 999.
- The number of prints icon [ ] appears.
- When the number of prints is set to “0”, DPOF print setting is cancelled.

■ **To cancel all settings**

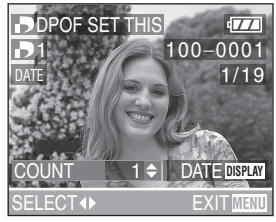
Select [YES] to cancel all settings.





■ **To print the date**

You can set/cancel the printing with the recorded date by pressing the [DISPLAY] button after setting the number of prints.



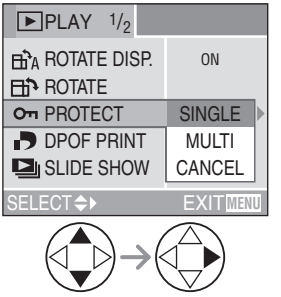
- The date print icon [DATE] appears.
- When using the software “SD Viewer for DSC” in the CD-ROM (supplied), you can print pictures with the date by setting the position on the print preview screen. For details, refer to the separate operating instructions about PC connection.
- When you go to a photo studio for digital printing, be sure to order the printing of the date additionally if required.
- The date may not be printed depending on photo studios or printers even if you set the date print. For further information, ask the photo studio or refer to the operating instructions of the printer.

- DPOF print setting is a convenient function when you print pictures with printers supporting PictBridge. (P98)
- DPOF is an abbreviation of Digital Print Order Format. This feature allows you to write print information into the media and to use such information on the DPOF-compliant system.
- If the file is not based on the DCF standard, the DPOF print setting cannot be set. DCF is an abbreviation of [Design rule for Camera File system], stipulated by JEITA [Japan Electronics and Information Technology Industries Association].
- When setting the DPOF print on the camera, delete any previous DPOF print settings made by other equipment.

Preventing Accidental Erasure of the Picture [PROTECT]

You can set the protection for the pictures which you do not want to be deleted by accident.

1 Select [SINGLE], [MULTI] or [CANCEL].



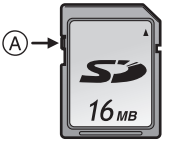
■ **Single setting**

Select the picture and set/cancel the protection.

SET	The protect icon [ ] appears.
CANCEL	The protect icon [ ] disappears.

■ **Multi setting/To cancel all settings**
Perform the same operation as in “Setting the Picture to be Printed and the Number of Prints [DPOF PRINT]”. (P85–87)

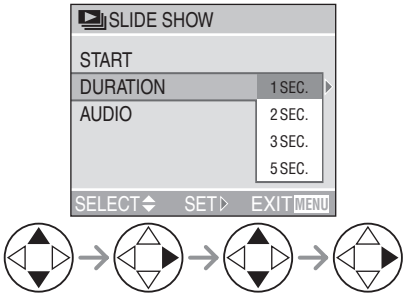
- If you want to delete protected pictures, cancel the protect setting first.
- While this feature protects the pictures from accidental erasure, formatting the card will permanently delete all data. (P93)
- The protect setting may not be effective in other equipment.
- Sliding the Card Write-Protect switch Ⓐ on the SD Memory Card to [LOCK] prevents the picture from deletion even if the protection is not set.



- The following functions cannot be used with protected pictures.
  – [ROTATE] (P84)
  – [AUDIO DUB.] (P89)

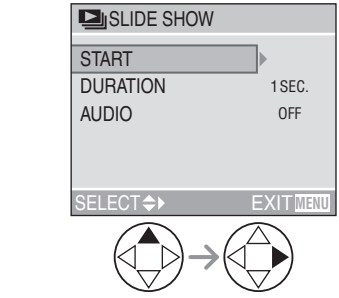
Playing Back with Slide Show [SLIDE SHOW]

1 Set the items of the Slide Show.



DURATION	It can be set to 1, 2, 3 or 5 seconds.
AUDIO	By setting it to [ON], the audio of the pictures with audio can be played back during Slide Show.

2 Select [START].



3 By pressing the [MENU] button, the Slide Show stops.

■ **SD Slide Show**

If you insert a card including the SD Slide Show edited with the [SD Viewer for DSC] which is in the supplied CD-ROM, and then turn the camera on in playback mode, the confirmation screen appears. Select [YES] and press ► to start the SD Slide Show. Select [NO] and press ► to start normal playback.

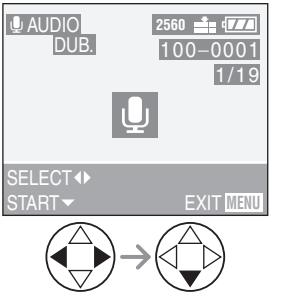
- Pictures set with the DPOF Slide Show by the [SD Viewer for DSC] cannot be played back as a Slide Show.

- Motion images cannot be played back in the Slide Show.
- When you play back pictures with audio, the next picture appears after the playback of the audio is finished (when [AUDIO] is set to [ON]).

Adding Audio to Recorded Pictures [AUDIO DUB.]

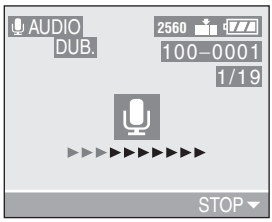
You can record the audio after taking a picture (max. 10 seconds per picture).

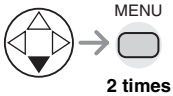
1 Select the picture and start audio recording.



- When audio has already been recorded, the confirmation screen appears. Press ▼ to select [YES], and press ► to start audio recording. (The original audio is overwritten.)
- The audio dubbing cannot be used with the following pictures.
  – Motion images
  – Protected pictures
  – Pictures recorded after setting the quality to [TIFF]

2 Stop audio recording.





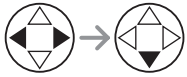
2 times

- The audio recording stops by pressing the ▼ button.
- Even if you do not press ▼, after about 10 seconds, the audio recording stops automatically.

Resizing the Pictures [RESIZE]

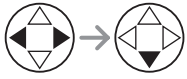
This function is useful if you want to reduce the file size of the picture in cases when it needs to be attached to an e-mail or uploaded to a website.

1 Select the picture and set it.



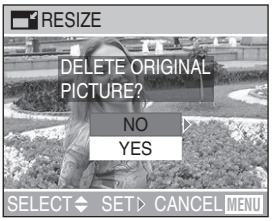
- The following pictures cannot be resized.
  - Pictures equal to or smaller than 640×480 pixels
  - Pictures recorded after setting the picture size to [HDTV]
  - Pictures recorded after setting the quality to [TIFF]
  - Motion images
  - Flip animation
  - Pictures with audio
- It may not be possible to resize pictures recorded with other equipment.

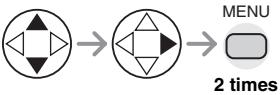
2 Select the size and set it.



- Sizes smaller than the recorded picture are displayed.
- [2048]: 2048×1536 pixels
- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels

3 Select [YES] or [NO] and set it.





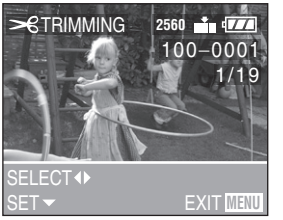
2 times

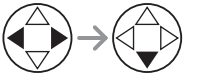
- When you select [YES], the picture is overwritten.
  When resized pictures are overwritten, they cannot be restored.
- When the original picture is protected, you cannot overwrite the resized picture.
  When you select [NO], a resized picture is newly created.

Trimming the Pictures [TRIMMING]

Use this function when you trim needed parts of the recorded picture.

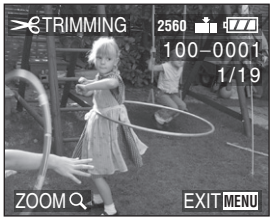
1 Select the picture to trim and set it.

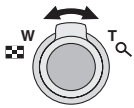




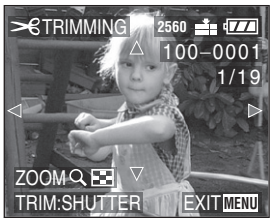
- The following pictures cannot be trimmed.
  – Pictures smaller than 640×480 pixels
  – Pictures recorded after setting the picture size to [HDTV]
  – Pictures recorded after setting the quality to [TIFF]
  – Motion images
  – Flip animation
  – Pictures with audio
- It may not be possible to trim pictures recorded with other equipment.

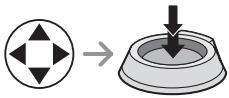
2 Enlarge or decrease the picture.



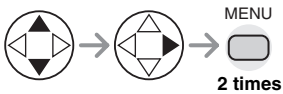


3 Shift the picture and press the shutter button to set.





4 Select [YES] or [NO] and set it.

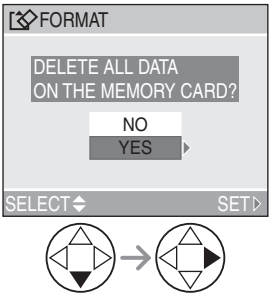


- When you select [YES], the picture is overwritten.
  When trimmed pictures are overwritten, they cannot be restored.
- When the original picture is protected, you cannot overwrite the trimmed picture.
  When you select [NO], a trimmed picture is newly created.

- Pictures will not be displayed in the rotated direction even if [ROTATE DISP.] is set to [ON]. (P84)
- The picture size of the trimmed pictures may become smaller than that of the original one depending on the cut size.
- The picture quality of the trimmed picture will be deteriorated.

Initializing the Card [FORMAT]

1 Select [YES] to format.

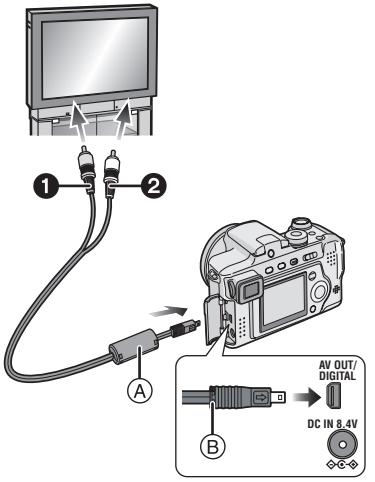


- Usually, it is not necessary to format the card. Format it when the message [MEMORY CARD ERROR] appears.
- If the card has been formatted by a PC or other equipment, format it on the camera again.
- **Once the card is formatted, all data including protected images are irretrievably erased. Please confirm that all data is transferred to your PC before proceeding with format function.**
- During formatting, do not turn the camera off.
- When you format the card, use a battery with sufficient battery power (P13) or AC adaptor (DMW-CAC1; optional).
- When the SD Memory Card Write-Protect switch is slid to [LOCK], you cannot format the card.
- If the card cannot be formatted, consult your nearest servicentre.

Playing Back Pictures on a TV Screen

■ **Playing back pictures with AV cable (supplied)**

• Turn the camera and the TV off.



1 Connect the AV cable Ⓐ (supplied) to the [AV OUT] socket of the camera.

• Connect the AV cable with the [➡] mark facing you.

• Hold the plug Ⓑ to push into or pull out.

2 Connect the AV cable to the video input and the audio input sockets of the TV.

• ❶ Yellow: to the video input socket

• ❷ White: to the audio input socket

3 Turn the TV on and select external input.

4 Turn the camera on and then set the mode dial to playback mode [▶].

■ **Viewing pictures in other countries**

When setting [VIDEO OUT] on the [SETUP] menu, you can view images on the TV in other countries (regions) which use the NTSC or PAL system.

■ **Playback pictures on TV with SD Memory Card slot**

A recorded SD Memory Card can be played back on TVs with an SD Memory Card slot.

If you play back pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be better.

(MultiMediaCard may not be played back on TV with SD Memory Card slot.)

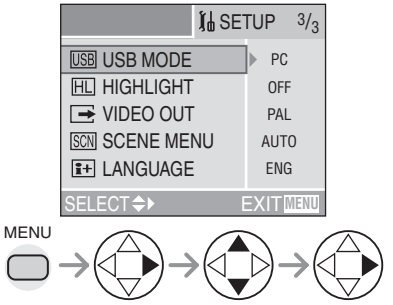
- Do not use any other AV cables except the supplied one.
- Only when the mode dial is set to playback mode [▶], the picture is displayed on the TV.
- Read the TV operating instructions too.
- Audio playback is in monaural.

Before Connecting to the PC or the Printer

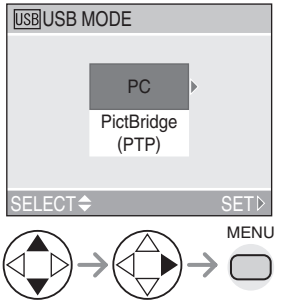
[USB : USB MODE]

Select the USB communication system before connecting the camera to your PC or your printer with the USB connection cable (supplied).
Set the items on [USB MODE] in the [SETUP] menu. (P22)

1 Select [USB MODE].



2 Select [PC] or [PictBridge (PTP)].

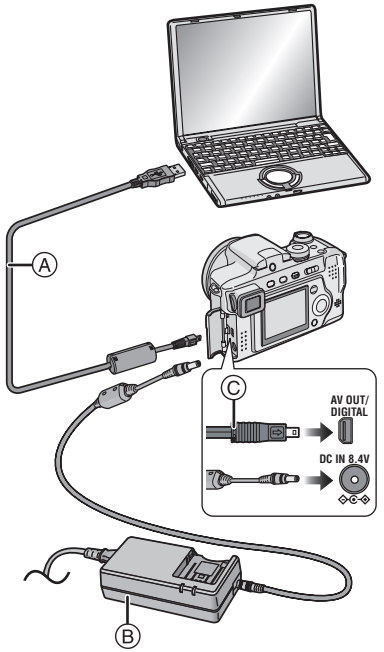


- If you connect the camera to a PC, select [PC]. (P96)
- If you connect the camera to a printer supporting PictBridge, select [PictBridge (PTP)]. (P98)

- When [PC] is selected, the camera is connected via USB Mass Storage communication system.
- When [PictBridge (PTP)] is selected, the camera is connected via PTP (Picture Transfer Protocol) communication system.

Connecting to a PC

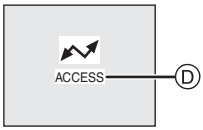
If you use Windows® 98/98SE, install the USB driver and then connect it to the computer.
(When using Windows Me/2000/XP, Mac OS 9.x, Mac OS X, you do not have to install the USB driver. Refer to the separate operating instructions about PC connection for the installation of the USB driver.)



Ⓐ: USB connection cable (supplied)
Ⓑ: AC adaptor (DMW-CAC1; optional)

1 Turn the camera on and then set [USB MODE] on the [SETUP] menu to [PC]. (P95)
- If you set [USB MODE] to [PictBridge (PTP)] and then connect the camera to the PC, messages may appear on the screen of the PC.
  Select [Cancel] to close the indications and disconnect the camera from the PC. Connect the camera after you set [USB MODE] again.

2 Connect the camera to a PC via the USB connection cable Ⓐ (supplied).
- Connect the USB connection cable with the [➡] mark facing you.
- Hold the plug Ⓒ to push into or pull out.



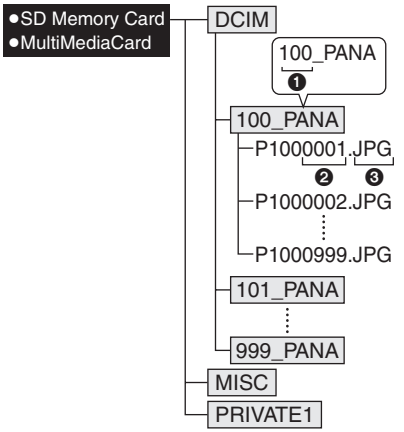
Ⓓ: This message appears during data transfer.

[Windows]
The drive appears on the [My Computer] folder.
- If it is the first time you are connecting the camera to a PC, the required driver is installed automatically so that the camera can be recognised by the Windows Plug and Play, then it appears on the [My Computer] folder.

[Macintosh]
The drive is shown on the screen as untitled.

■ **Folder Composition**

The folder structure of the card or MultiMediaCard is displayed as the illustration below.



❶ Folder number
❷ File number
❸ JPG: pictures
MOV: motion images

Files will be saved in each folder as follows.

DCIM	Folders from [100_PANA] to [999_PANA]
100_PANA	Pictures/motion images
MISC	Files on which the DPOF print settings are recorded
PRIVATE1	Pictures recorded in flip animation function

- When recording, up to 999 picture data can be included in 1 folder. If the number of picture data exceeds 999, another folder will be created.
- When you reset the file number or the folder number, select [NO.RESET] in the [SETUP] menu. (P22)

- If the remaining battery power is exhausted during communication, the recorded data may be damaged. When you connect the camera to the PC, use a battery with sufficient battery power (P13) or the AC adaptor (DMW-CAC1; optional).
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication at once.
- While [ACCESS] is being displayed, do not disconnect the USB connection cable.
- **When the OS of your PC is Windows 2000 and you connect the camera to the PC with the USB connection cable, do not replace the card with the camera connected to the PC. The information in the card may be damaged.**
- Do not use any other USB connection cables except the supplied one.
- For more information, refer to the separate operating instructions about PC connection.
- Also refer to the operating instructions of the PC.

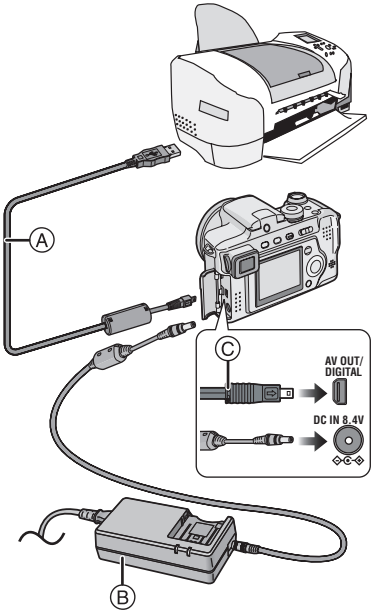
■ **PictBridge (PTP) setting**

Even if you set the [USB MODE] to [PictBridge (PTP)], you can connect to the PC only when the OS is Windows XP Home Edition, Windows XP Professional or Mac OS X.

- You can only load pictures from the camera and cannot write them on the card or delete them.
- When there are 1000 or more pictures on a card, the pictures may not be imported.

Connecting to a PictBridge-compliant Printer

By connecting the camera directly to a printer supporting PictBridge via the USB connection cable (supplied), you can select the pictures to be printed or start printing on the LCD monitor.
Set the print settings such as print quality on the printer beforehand. (Read the printer operating instructions.)



Ⓐ: USB connection cable (supplied)
Ⓑ: AC adaptor (DMW-CAC1; optional)

1 Turn the camera on and then set [USB MODE] on the [SETUP] menu to [PictBridge (PTP)]. (P95)

2 Turn on the printer.

3 Connect the camera to a printer via the USB connection cable Ⓐ (supplied).

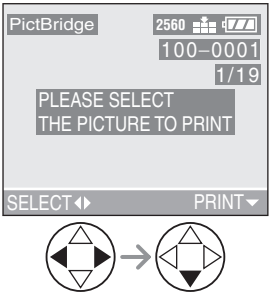
- Connect the USB connection cable with the [➡] mark facing you.
- Hold the plug Ⓒ to push into or pull out.

When the DPOF Print is not set.	Select [SINGLE PICTURE]. (P99)
When the DPOF Print is set. (P85)	Select [DPOF PICTURE]. (P100)

- It may take time to print some pictures. Therefore, use a battery with sufficient battery power (P13) or the AC adaptor (DMW-CAC1; optional) when you connect to a printer.
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication at once.
- Disconnect the USB connection cable after printing.
- Do not use any other USB connection cables except the supplied one.

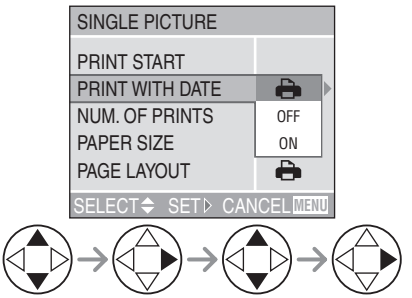
■ **Single picture**

1 Select a picture to be printed.



• A message disappears in about 2 seconds.

2 Set the print settings.



• The items which are not supported by the printer are displayed in grey and cannot be selected.
• When you want to print pictures in a paper size or a layout which is not supported by the camera, set [PAPER SIZE] or [PAGE LAYOUT] to [🖨] and then set the paper size or the layout on the printer. (For details, refer to the operating instructions of the printer.)

• **[PRINT WITH DATE]**

🖨	Settings on the printer are prioritised.
OFF	Date is not printed.
ON	Date is printed.

• If the printer does not support date printing, the date cannot be printed on the picture.

• **[NUM. OF PRINTS]**

Set the number of prints.

• **[PAPER SIZE]**

(Possible paper sizes on the camera)

The items are listed on 1/2 and 2/2. Press ▼ to select the desired item.

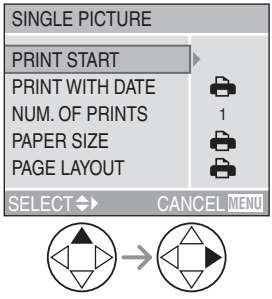
1/2	
🖨	Settings on the printer are prioritised.
L/3.5″×5″	89 mm×127 mm
2L/5″×7″	127 mm×178 mm
POSTCARD	100 mm×148 mm
A4	210 mm×297 mm
2/2*	
CARD SIZE	54 mm×85.6 mm
10×15cm	100 mm×150 mm
4″×6″	101.6 mm×152.4 mm
8″×10″	203.2 mm×254 mm
LETTER	216 mm×279.4 mm

*These items cannot be displayed when the printer does not support the paper sizes.

• **[PAGE LAYOUT]**
(Possible layouts on the camera)

	Settings on the printer are prioritised.
	1 page with no frame print
	1 page with frame print
	2 pages print
	4 pages print

3 Select [PRINT START] and then print out the picture.

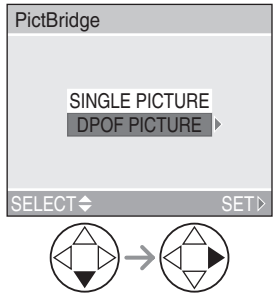


• Press the [MENU] button to cancel printing.

■ **DPOF picture**

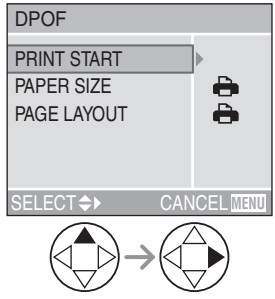
• Set the DPOF print with the camera in advance. (P85)

1 Select [DPOF PICTURE].



• When printing under the new settings, disconnect the USB connection cable and connect it to the printer again.
• You can change the DPOF print setting by pressing the [MENU] button. (P85)

2 Select [PRINT START] and then print out the picture.



• Refer to P99 for print setting.
• Press the [MENU] button to cancel printing.

■ Setting the date printing with the DPOF print in advance

When the printer supports the date printing by DPOF setting, we recommend setting the date printing with the DPOF print in advance. (P86) The recording date can be printed by selecting [DPOF PICTURE] to start printing.

- Do not disconnect the USB connection cable when the cable disconnection warning icon [ ] is indicated.
- When the [●] indication lights in orange during printing, the camera is receiving an error message from the printer. Make sure there is no malfunction on the printer after finishing printing.
- When the printer does not support TIFF print, you cannot print pictures with TIFF quality.
- In DPOF print, if the total number of prints or the number of printed pictures is high, pictures may be printed several times. (The indication of the remaining number of prints is different from the setting, however, this is not a malfunction.)
- The setting on the printer may have priority over the setting on the camera in the date print. Also check the date print setting on the printer.
- If the printer does not support date printing, the date cannot be printed on the picture.

■ Layout printing

- **When printing a picture several times on 1 sheet of paper**

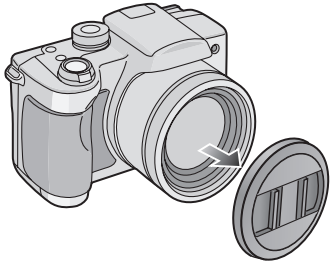
  For example, if you want to print a picture 4 times on 1 sheet of paper, set [PAGE LAYOUT] to [ ] and then set the number of prints to 4 for the picture on [NUM. OF PRINTS].
- **When printing different pictures on 1 sheet of paper (only in DPOF printing)**

  For example, if you want to print 4 different pictures on 1 sheet of paper, set [PAGE LAYOUT] to [ ] and then set the number of prints to 1 on [COUNT] in DPOF print setting (P85) for each of the 4 pictures.

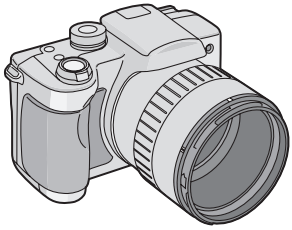
Using the MC Protector/ND Filter

The MC protector (DMW-LMC55; optional) is a transparent filter which affects neither the colours nor the amount of light, so it can always be used to protect the camera's lens.
The ND filter (DMW-LND55; optional) reduces the amount of light to approximately 1/8th (equal to adjusting the aperture value 3 increments) without affecting the colour balance.

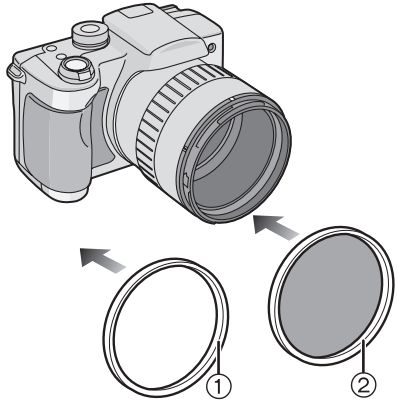
1 Remove the lens cap.



2 Attach the lens hood adaptor. (P19)

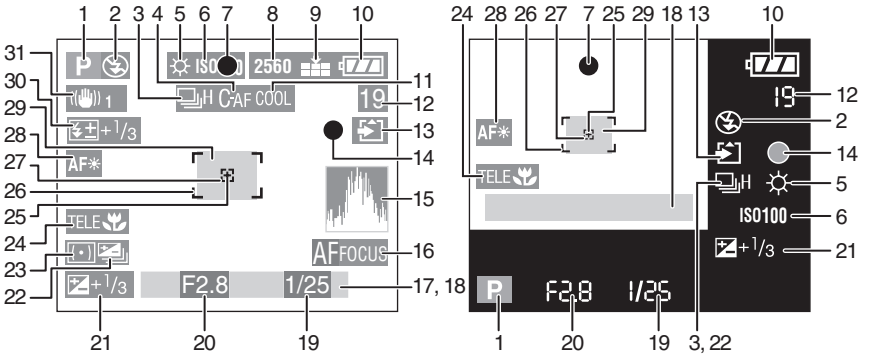


3 Attach the MC protector ① or the ND filter ②.



- The lens cap supplied with the camera cannot be attached to the MC protector or the ND filter.
- You cannot attach the MC protector and the ND filter at the same time.
- When taking pictures with the flash using the MC protector or ND filter, vignetting effect may occur.
- If the MC protector/ND filter are dropped, they may be destroyed. Be careful not to drop them when attaching them to the camera.
- **MC="Multi-coated"**
  ND="Neutral Density"

Screen Display



■ **In recording**

1 Recording mode

2 Flash mode (P39)

3 Burst (P47)
: Audio recording (P60, 74)

4 Continuous AF (P76)

5 White balance (P70)

6 ISO sensitivity (P72)

7 Focus (P30)

8 Picture size (P73)

9 Quality (P73)
: Jitter alert (P32)

10 Battery indication (P13)

11 Colour effect (P79)

12 Picture/Time remain
In Motion image mode: e.g. 11S

13 Card access indication (P16)

14 Recording state

15 Histogram (P28)

16 AF trigger (P76)

17 Current date and time (P21)
- This is displayed for about 5 seconds when turning the camera on, setting the clock and after switching from the playback mode to the recording mode.

18 Zoom/Digital zoom (P38, 78)
W T 30X

19 Shutter speed (P30)

20 Aperture value (P30)

21 Exposure compensation (P44)

22 Auto bracket (P45)

23 Metering mode (P74)

24 Tele-macro (P59)

25 Spot metering target (P74)

26 AF area (P30)

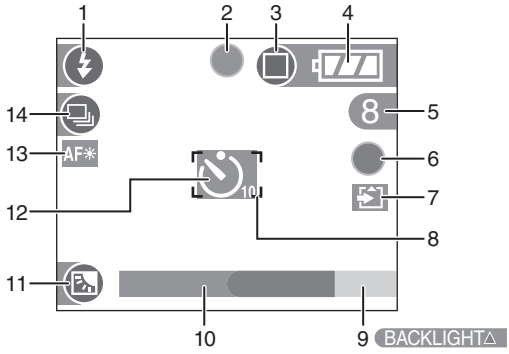
27 Spot AF area (P75)

28 AF assist lamp (P77)

29 Self-timer (P43)

30 Flash output adjustment (P41)

31 Optical image stabilizer (P46)



■ **Recording in simple mode**

1 Flash mode (P39)

2 Focus (P30)

3 Picture mode (P34)
: Jitter alert (P32)

4 Battery indication (P13)

5 Pictures remaining

6 Recording state

7 Card Access indication (P16)

8 AF area (P30)

9 Operation for backlight compensation (P36)

10 Current date and time (P21)
- This is displayed for about 5 seconds when turning the camera on, setting the clock and after switching from the playback mode to the simple mode.

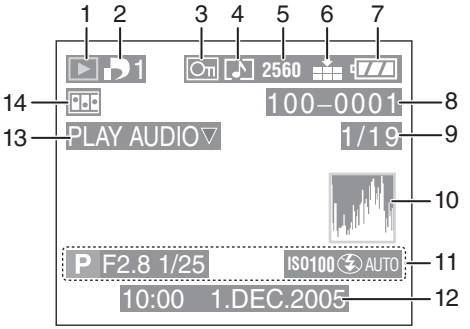
Zoom (P38)
W T 1X

11 Backlight compensation (P36)

12 Self-timer (P43)

13 AF assist lamp (P77)

14 Burst (P47)



■ **In playback**

1 Playback mode

2 Number of DPOF prints (P85)

3 Protected picture (P87)

4 Picture with audio (P82)

5 Picture size (P73)
: In Motion image mode

6 Quality (P73)
10fps / 30fps : In Motion image mode (P60)
Simple mode (P34):
: ENLARGE
: 4″×6″/10×15cm
: E-MAIL

7 Battery indication (P13)

8 Folder/File number (P97)

9 Page number/Total pictures

10 Histogram (P28)
• It will be displayed when the [DISPLAY] button is pressed.

11 Recording information (Recording mode/Aperture value/ Shutter speed/ISO sensitivity/Flash mode/White balance)
• It will be displayed when the [DISPLAY] button is pressed.

12 Recorded date and time

13 Audio playback (P82)
PLAY MOTION IMAGE▽ : In Motion image mode

14 Flip animation (P79)

Cautions for Use

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult the Panasonic Customer Care Centre on 132600.

■ Optimal Use of the Camera

When carrying the camera, take care not to drop or cause impact to it.

- The lens or the outer case may be destroyed by the strong shock, and it causes a malfunction of the camera.

Keep the camera away from magnetised equipment (such as a microwave oven, TV, video game equipment, etc.).

- If you use the camera on or near a TV, pictures and sounds may be disrupted due to electromagnetic wave radiation.
- Do not use the camera near a cell phone because doing so may cause noise to adversely affect the pictures and sounds.
- Recorded data may be damaged, or pictures may be distorted by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by a microprocessor may adversely affect the camera, causing the disturbance of pictures and sounds.
- If the camera is affected by magnetically charged equipment and does not function properly, turn the camera off and remove the battery or disconnect AC adaptor (DMW-CAC1; optional) and then insert the battery or connect AC adaptor again. Thereafter, turn the camera on.

Do not use the camera near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, recorded pictures or sounds may be adversely affected.

Make sure to use the supplied cords and cables. If you use optional accessories, use the cords and the cables supplied with them.
Do not extend the cords and the cables.

Do not spray insecticides or volatile chemicals onto the camera.

- If the camera is sprayed with such chemicals, the camera body may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

Do not use benzine, thinner or alcohol for cleaning the camera.

- Before cleaning the camera, remove the battery or disconnect the AC cable from the electrical outlet.
- The camera body may be deformed and the surface finish may peel off.
- Wipe the camera with a soft, dry cloth. To remove stubborn stains, wipe with a cloth that is soaked in a detergent diluted with water and afterward finish wiping with a dry cloth.
- If you use a chemical cloth, follow the instructions that come with the cloth.
- In case rain or other sources of water splash onto the camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then wipe it again with a dry cloth.

■ **Card**

While the card access indication appears (the card is being accessed), do not open the card door to remove the card, do not turn the camera off or do not shake or cause impact to the camera.

Do not leave the card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated.

Do not bend or drop the card.

- The card may be damaged or the recorded content may be damaged or erased.
- Store the card in the card case or the storage bag after use and when you store or carry the card.
- Do not allow dirt, dust or water to enter the terminals on the back of the card and do not touch the terminals with your fingers.

■ **Battery**

The battery is a rechargeable lithium ion battery. Its ability to generate power is based upon the chemical reaction that takes place inside it. This reaction is susceptible to the surrounding temperature and humidity, and, if the temperature is too high or too low, the operating time of the battery will be shorter.

After use, be sure to remove the battery.

If you drop the battery accidentally, check to see if the battery body and terminals are damaged.

- Inserting a damaged battery in the camera will damage the camera.

When you go out, bring charged spare batteries.

- Be aware that the operating time of the battery will become shorter in low temperatures such as outdoors at a ski resort.
- When you travel, be sure to prepare the supplied charger to charge the battery on the spot.

Dispose of an unusable battery.

- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.

Do not allow the battery terminals to come in contact with metal objects (such as necklaces, hairpins, etc.).

- This can result in a short circuit or heat generation and, if you touch the battery in this condition, you may be badly burned.

■ **Charger**

- If you use the charger near a radio, radio reception may be disturbed. Keep the charger 1 m or more away from radio.
- When the charger is in use, it may generate whirring sounds. However, this is not a malfunction.
- After use, be sure to disconnect the AC cable from the electrical outlet. (If it is left connected, a minute amount of current is consumed.)
- Keep the terminals of the charger and battery clean.

Message Display

Confirmation messages or error messages will be displayed on the screen in some cases.
Major messages are described below as examples.

[THIS MEMORY CARD IS PROTECTED]
Unlock [LOCK] of the Write-Protect switch on the SD Memory Card. (P16)

[NO VALID IMAGE TO PLAY]
Play back after recording or after inserting a card with a recorded picture.

[THIS PICTURE IS PROTECTED]
After cancelling the protect setting, delete or overwrite the picture.

[THIS PICTURE CANNOT BE DELETED]/[SOME PICTURES CANNOT BE DELETED]
The pictures not based on the DCF standard cannot be deleted.

[CANNOT BE SET ON THIS PICTURE]/[CANNOT BE SET ON SOME PICTURES]
If the pictures are not based on the DCF standard, the DPOF print cannot be set.

[NO ADDITIONAL DELETE SELECTIONS CAN BE MADE]
You have exceeded the number of pictures that can be set at once with [MULTI DELETE]. Once delete the selected pictures and then repeat deleting multiple pictures.

[MEMORY CARD ERROR FORMAT THIS CARD?]
The format of the card cannot be recognised by the camera. Format the card again with the camera.

[PLEASE TURN CAMERA OFF AND THEN ON AGAIN]
This message appears when the camera does not operate properly. Turn the camera off and on. If the message persists, contact the dealer or your nearest servicentre.

[MEMORY CARD ERROR]
Failed access to the card.
Insert the card again.

[READ ERROR]
Data reading error.
Play it back again.

[WRITE ERROR]
Data writing error.
Turn the camera off and remove the card. Then insert the card and turn the camera on again. Be sure that the camera is turned off before removing or inserting the card to avoid damage.

Troubleshooting

If you put the menu back to the settings at the time of purchase, the conditions may be improved.
Carry out the [RESET] in the [SETUP] menu. (P22)

■ Battery and the power source

1: The camera cannot be operated even when it is turned on.
- Is the battery inserted correctly?
- Is the battery sufficiently charged?
  – Use a battery that has been sufficiently charged.

2: The camera is turned off immediately even after it is turned on.
- Is the battery charge insufficient to operate the camera?
  – Use a battery that has been sufficiently charged.

■ Recording

1: The picture cannot be recorded.
- Is the card inserted?
- Is the mode dial correctly set?
- Is there any memory capacity left on the card?
  – Before recording, delete some pictures.

2: The subject is not focused properly.
- The focus range varies depending on the recording mode.
  Rotate the mode dial to set to the proper mode for the distance to the subject.
- Is the subject out of the focus range? (P32)
- When you cannot focus on the subject even if you tried many times, turn the camera off once and turn it on again.

3: The recorded picture is blurred.
- When taking a picture in shaded areas or indoors, the shutter speed becomes slow and the optical image stabilizer function may not work properly. In this case, we recommend holding the camera with both hands firmly to take pictures. When you take pictures with slow shutter speed, we recommend using a tripod. (P31)

■ LCD monitor

1: The brightness of the screen becomes dark or bright for a moment.
- This phenomenon appears when pressing the shutter button halfway to set the aperture value and does not affect the recorded pictures.

2: The picture is not displayed on the LCD monitor.
- Does the picture appear on the Viewfinder?
  – Press the [EVF/LCD] button to switch to LCD monitor display.

3: The screen is too bright or dark.
- Adjust the brightness of the screen.

4: Some pixels are inactive or always lit on the LCD monitor.
- These pixels do not affect the recorded pictures.
  This is not a malfunction.

5: Noise appears on the LCD monitor.
- In dark places, noise may appear to maintain the brightness of the LCD monitor.
  This does not affect the pictures you are recording.

6: A vertical red line appears on the LCD monitor.
- This is called smear. It is specific to CCD, not a malfunction. It appears when the subject has a bright part. It is recorded on motion images, but not recorded on still pictures.

■ Flash

1: Flash is not activated.

- Is the flash closed?
  - Press the [OPEN] button to open the flash.
- In motion image mode [ ], [SCENERY], [NIGHT SCENERY] or [FIREWORKS] in scene mode (P62), the flash setting is fixed to the Forced OFF [ ] even if the flash is opened.

2: The flash is activated 2 times.

- When you select AUTO/Red-eye reduction [ ], the first flash is activated for red-eye prevention on the subject (red-eye phenomenon) before actually recording pictures. After the first flash, the flash is activated again for recording.

■ Playback

1: Pictures being played are rotated and displayed in an unexpected direction.

The camera has a function to automatically rotate and display pictures recorded by holding the camera vertically.
(If you take pictures aiming the camera up or down, the camera may recognise that it is held vertically.)

- When [ROTATE DISP.] (P84) is set to [OFF], you can display the pictures without being rotated.
- You can rotate pictures with [ROTATE] function (P84).

2: The picture is not played back.

- Is the mode dial set to playback [ ]?
- Is the card inserted?
- Is there a picture in the card?

3: The picture played back looks rough. Noise appears on the picture.

- Is the ISO sensitivity is high or is the shutter speed slow?
  - Decrease the ISO sensitivity. (P72)
  - Set [PICT.ADJ.] to [NATURAL]. (P79)
  - Take pictures in bright places.

■ TV, PC and printer

1: The picture does not appear on the television.

- Is the camera connected to the TV correctly?
- Set the TV input to external input mode.

2: When connecting to a PC, pictures cannot be transferred.

- Is the camera connected to the PC correctly?
- Is the camera recognised by the PC correctly?
- Set [USB MODE] to [PC]. (P95)

3: The card is not recognised by the PC.

- Disconnect the USB connection cable and then connect it again with the card inserted into the camera.

4: The pictures cannot be printed with the camera connected to printers.

- Is the printer supporting PictBridge?
  - You cannot print pictures with printers which do not support PictBridge (P98).
- Set [USB MODE] to [PictBridge (PTP)]. (P95)

5: Both ends of the picture recorded by setting the picture size to [HDTV] (1920×1080 pixels) are cut out.

- When you order photo studios to print pictures, ask the photo studio if the pictures can be printed with both ends.
- When using the printer with a trimming feature or other feature which cuts out both edges of the pictures, cancel the feature for printing. The feature depends on the printer used.
- Refer to the operating instructions of the printer for details.

■ Others

1: Unreadable language was selected by mistake.

- Press the [MENU] button and select [ ] icon on the [SETUP] menu to set the desired language.

2: The setting for the auto review function is disabled.

- Is the camera in burst mode (P47), auto bracket (P45) or motion image mode [ ] (P60), or is [AUDIO REC.] set to [ON] (P74)?
  - In these cases, you cannot set the auto review function in the [SETUP] menu.

3: A certain part of the picture blinks.

- This appears due to the highlight display function which shows white saturated areas. (P27)

4: When the shutter button is pressed halfway, a red lamp turns on sometimes.

- In dark places, the AF assist lamp (P77) lights red to make it easier to focus on a subject.

5: The camera will make sounds caused by internal mechanical movement when it is shaken.

- The sound arises when the lens moves. This is not a malfunction.

6: When the zoom lever is rotated, the camera makes a noise.

- When the zoom function is activated, you may hear some sound from the camera or the camera may shake. However, it is not a malfunction.

7: The lens clicks.

- When brightness has changed due to the zoom or the movement of the camera or other, the lens may click and the picture on the screen may be drastically changed, however, the pictures are not affected.
  The sound is caused by automatic adjustment of the aperture.
  It is not a malfunction.

8: The clock setting is reset.

- If you do not use the camera for a long time, the clock setting may be reset. When the message [PLEASE SET THE CLOCK] appears, set the clock again.
- When you take a picture before setting the clock, [0:00 0. 0. 0] is recorded.

9: Colours that were actually not around the subject appear on the picture.

- This camera compensates the colour shift caused by the characteristic of the lens. However, the colour shift may appear when you rotate the zoom lever to Tele, etc.
  This is not a malfunction.

Specifications

Digital Camera:	Information for your safety
Power Source:	DC 8.4 V
Power Consumption:	2.1 W (When recording with LCD Monitor) 2.0 W (When recording with Viewfinder) 1.2 W (When playing back with LCD Monitor) 1.1 W (When playing back with Viewfinder)
Camera Effective pixels:	5,000,000 pixels
Image sensor:	1/2.5″ CCD, total pixel number 5,360,000 pixels Primary colour filter
Lens:	Optical 12× zoom, f=6 – 72 mm (35 mm film camera equivalent: 36 – 432 mm)/F2.8 – F3.3
Digital zoom:	Max. 4×
Focus:	Normal/Macro, 9-area-focusing/3-area-focusing (high speed)/1-area-focusing (high speed)/1-area-focusing/Spot-focusing/AF trigger switching
Focus range:	30 cm (Wide)/2 m (Tele) – ∞, Macro (Except Tele)/Simple/Aperture-priority AE/Shutter-priority AE/ Manual exposure: 5 cm (Wide)/2 m (Tele) – ∞ Macro (Tele): 1 m – ∞
Shutter system:	Electronic shutter + Mechanical shutter
Burst recording	
Burst speed:	3 frames/second (high speed), 2 frames/second (low speed), Approx. 2 frames/second (unlimited)
Number of recordable pictures:	Max. 7 frames (Standard), max. 4 frames (Fine), Depends on the remaining capacity of the card. (unlimited) (Performance in burst recording is only with SD Memory Card. MultiMediaCard performance will be less.)
Motion image recording:	320×240 pixels (30 or 10 frames/second with audio. The maximum recording time depends on the capacity of the card.)
ISO sensitivity:	AUTO/80/100/200/400
Shutter speed:	8 – 1/2,000th Motion image mode: 1/30th – 1/2,000th
White balance:	AUTO/Daylight/Cloudy/Halogen/Flash/White set
Exposure (AE):	Programme AE (P)/Aperture-priority AE (A)/Shutter-priority AE (S)/Manual exposure (M) Exposure compensation (1/3 EV Step, −2 – +2 EV)
Metering mode:	Multiple/Centre weighted/Spot
LCD monitor:	1.8″ low-temperature polycrystalline TFT LCD (130,000 pixels) (field of view ratio about 100%)
Viewfinder:	Colour electrical Viewfinder (114,000 pixels) (field of view ratio about 100%) (with diopter adjustment −4 – +4 diopter)

Flash:	Built-in pop up flash Flash range: (ISO AUTO) Approx. 30 cm – 4.5 m (Wide) AUTO, AUTO/Red-eye reduction, Forced ON (Forced ON/ Red-eye reduction), Slow sync./Red-eye reduction, Forced OFF
Microphone:	Monaural
Speaker:	Monaural
Recording media:	SD Memory Card/MultiMediaCard
Picture size:	2560×1920 pixels, 2048×1536 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels, 1920×1080 pixels (Still picture) 320×240 pixels (Motion image)
Quality:	Fine/Standard/TIFF
Recording file format	
Still Picture:	JPEG (Design rule for Camera File system, based on Exif 2.2 standard)/TIFF (RGB), DPOF corresponding
Picture with audio:	JPEG (Design rule for Camera File system, based on Exif 2.2 standard)+640×480 pixels QuickTime (picture with audio)
Motion images:	QuickTime Motion JPEG (motion images with audio)
Interface	
Digital:	USB 2.0 (Full Speed)
Analogue video/audio:	NTSC/PAL Composite (Switched by menu), Audio line output (monaural)
Terminal	
AV OUT/DIGITAL:	Dedicated jack (8 pin)
DC IN:	type 3 jack
Dimensions:	108 mm (W)×68.4 mm (H)×84.8 mm (D) (excluding the projection part)
Weight:	Approx. 290 g (excluding Memory Card and battery) Approx. 326 g (with Memory Card and battery)
Operating Temperature:	0°C – 40°C
Operating Humidity:	10% – 80%

Battery Charger
(Panasonic DE-994A): Information for your safety

Input:	110 – 240 V ~ 50/60 Hz, 0.15 A
Output:	CHARGE 8.4 V ⎓ 0.43 A

Battery Pack (lithium-ion)
(Panasonic CGA-S002E): Information for your safety

Voltage/capacity:	7.2 V, 680 mAh

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